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ABSTRACT

To help Ontario (Canada) meet its goal of high quality education, researchers examined the processes by which learning materials are developed, educators' perceptions of both the processes and the materials, and the problem of maintaining high quality in learning materials while enrollments are declining. Questionnaire surveys of Ontario teachers, school board members, and publishers of commercial educational materials, together with interviews of Ministry of Education personnel and analyses of book industry journals, yielded data about influences on instruction and on commercial and local learning materials, methods of evaluating learning resources, school boards' allocations for learning materials, the ministry's book purchases and approval of materials, improvements needed in commercial and local materials, and information sources on learning materials. The report discusses the ministry's planning for materials development, commercial publishers' problems in developing materials, teacher and board assessments of ministry-approved materials and of materials developed by local boards or teachers, and alternative methods for developing, testing, and evaluating educational materials. Among the report's recommendations are that research be conducted on learning materials' effects on student learning, that teacher feedback be incorporated into learning material development, and that a provincial learning materials development center be established. (RW)

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# EDUCATOR AND PUBLISHER PERCEPTIONS OF QUALITY CURRICULUM AND INSTRUCTIONAL MATERIALS DURING DECLINING SCHOOL ENROLMENTS

Jim Kormos

August, 1978

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## INTRODUCTION

### RATIONALE

The Commission on Declining School Enrolments (CODE) in Ontario was established by an Order-in-Council and approved by Her Honour the Lieutenant Governor on August 29, 1977. The CODE Commissioner, Dr. R.W.B. Jackson, established task forces in the areas of finance, school facilities and the community, demography, teacher education, and curriculum. The Curriculum Task Force, with Dr. F.M. Connelly as chairman, focused on two central tasks. They were:

1. to determine both the actual and expected effects of declining enrolments on school programs; and
2. to determine what should be protected to ensure high quality education.[1]

The concern of the task force was that the principles of equal educational opportunity and the provision for individual differences would be threatened with declining enrolments and the associated decline in resources.[2] A serious problem accompanying declining enrolments is the kind and quality of curriculum and instructional materials.

This report, subcontracted by the Curriculum Task Force in February, 1978, addresses the issue of quality learning materials within the framework of the two previously stated tasks.

Selected learning materials are a basic component of the curriculum in shaping what students learn. Students spend a large portion of instructional time interacting with some form of learning material. The trends reflected in current Ministry of Education (MOE) curriculum documents of keeping up with new knowledge and increasing emphasis on

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[1] F.M. Connelly, R.J. Enns, and R.W.B. Jackson, *The Royal Commission on Declining School Enrolments in Ontario: A Bulletin on the Commission and its Studies in Curriculum*, July, 1978. p. 5.

[2] Ibid., p. 5.

prescriptive core have resulted in increased awareness of the need for high quality learning materials. At a time of declining enrolments and financial constraints the need for quality learning materials is even greater. These learning materials are generated by the MOE in the form of curriculum resource documents, and in a variety of other forms by commercial publishers, local board committees and classroom teachers. Quality materials, regardless of origin, will contribute significantly to the teaching and learning process. To the extent that materials influence instruction they should be the best possible products available to students. The most significant factor influencing the development and use of quality learning materials is the extent to which these materials facilitate meaningful learning. The need for alternative and varied resources poses problems requiring a conceptually sound plan to create reasonable solutions for production, evaluation, availability, selection and use of such materials.

The plan must be taken into account when decisions are made and procedures followed. Learning materials do not possess inherent educative value but rather must be seen closely interrelated to the purposes and processes of school learning. The development and selection of learning materials must reflect not only society's educational purposes but be responsive to particular groups of learners, at a particular time, a particular place and a particular educative environment.

The current state of practice in learning materials planning, development, evaluation, selection and use varies considerably from situation to situation with the people involved, the processes used and the criteria applied (both implicitly and explicitly). Declining enrolments are likely to reduce this variety but variety must be maintained. It is variety that provides the diversity necessary for quality materials. Given this variety, opportunities exist for the reification of educational goals through the collaborative efforts of experienced classroom teachers, publishers, curriculum experts and scholars in the disciplines by providing learning materials constructed on sound principles from both pedagogy and the theories of knowledge and learning.

*PURPOSE*

The central purposes of this report were to review the development of learning materials ~~development~~ issues in relation to declining school enrolments and the stated educational goals of Ontario and to describe surveys of school board and teaching personnel on those issues. In addition, the influences ~~on~~ and processes of commercial and local learning materials development, evaluation and use were examined. The contributions of government guidelines and policies, externally funded programs, reflexive feedback systems, resource availability, research and evaluation, role delineation, and professional development opportunities are discussed within the framework of improved quality learning materials.

*SCOPE OF THE PROBLEM*

This report is divided into five major parts: Methodology, Focus on Ministry Guidelines and Policy, the Publishers, Board and Teacher Perceptions of Commercial and Local Learning Materials, and Development and Evaluation of Learning Materials.

Learning materials need to be considered from many points of view. In the selection process consideration must be given to correct and significant information content, to ~~challenging expectations within student capabilities,~~ and to appropriate social orientation suited to the learning desired. Above all, the learning materials should be interesting and rewarding for the students, as well as economical and manageable for the teachers.

A broadly conceived definition of learning materials for this working paper is: "Materials are the physical media through which the intents of the curriculum, mediated instructionally, are experienced by the learner."[3] Any conceptualization of learning materials that is comprehensive and holistic must come to terms with its meaning within "the curriculum." The current state of curriculum theory offers many alternative conceptions

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[3] H. Talmage and M.J. Eash, *A Paradigm for Designing Evaluation Studies of Three Determinants of the Classroom Learning Environment: Curriculum, Instruction, and Instructional Materials.* Paper presented at AERA, Toronto, 1978.

representing different starting points.[4] Despite varied conceptions it is proposed that:

> a curriculum presents for students' use, activities that have been selected from important human enterprises, adapted to the student and his circumstances, and organized so as to induct him into the enterprise at some appropriate level of competence. Students' participation in these activities is the immediate source of their learning and whatever other impact the curriculum may have on them. These outcomes are dependent on the patterns or designs built into the activities by teachers or professional curriculum designers or both.[5]

As quality learning materials frequently embody these activities, it is particularly important during times of declining enrolments that the best possible learning resources are available to the students, that students be guided and directed in their use, and that appropriate form and content be designed into the activities to which students are directed. Student achievement is dependent on learning materials which fulfil these functions within the curricular and instructional context.[6]

Two problems are confronted in the search for appropriate learning materials. First, the identification of what currently exists in a specific subject matter area of the curriculum and second, an evaluation of whether the learning materials match teacher and learner needs. Sources of learning materials are Ministry Circulars, commercial flyers, professional journals, learning materials centre collections, workshops and conferences, teacher-training institution libraries and diverse publications. Having identified what learning materials currently exist, standards or criteria are needed to evaluate learning materials for local use. It is at this stage that any conscientious attempt to select learning materials reveals issues and problems related to the field of learning materials.

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[4] J. Goodlad. "What Goes on in Our Schools." *Educational Researcher* (March 1977), p. 5.

[5] D.F. Walker. *How Does a Curriculum Work.* Draft paper, Stanford University, 1977, p. 56.

[6] Ibid., p. 12.

Five major problem areas have been currently identified in developing and evaluating learning materials.[7]

While there are at present general areas of agreement among many authors of what criteria are important in curriculum materials, a major problem centers on what characteristics of learning materials can be used to define quality. Some common criteria feature the importance of clearly stated objectives, appropriate matching with age or grade level, the "need to evaluate how well the students learn from the materials while they are still in developmental stages, and the role of the teacher in using the materials."[8] As some criteria are unique to different authors and have varying degrees of research and validation behind them, there is "no agreement as to how certain criteria contribute to quality materials."[9] And not enough is known about how well the materials help students learn what is intended.

A second major problem is that alternative research methodologies need to be accepted and used for studying effects when cognitive skills, psychomotor skills, affective growth or some combination of these is the major focus of the material.

A third major problem involves "learner verification and revision" which refers to procedures used in evaluation processes during product development and after the release of a product on the market.

A fourth major problem centers on who will be responsible for the learning (intended and unintended) which results from using specific materials. It seems reasonable that all involved--publishers, teachers and students--must share this responsibility through the delineation of expectations and responsibilities of those involved.

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[7]F. Klein. *Learning Materials*. Association for Supervision and Curriculum Development, 1978, p. 14.

[8]Ibid., p. 14.

[9]Ibid., p. 14.

A fifth major problem is who will decide what learning materials are to be developed, selected and used in classrooms in schools. Without clear definition and shared understanding of learning materials, parents, teachers, boards, publishers, academics and Ministry personnel experience difficulty contributing most effectively in these given areas.

## METHODOLOGY

Initial discussions and interviews with knowledgeable curriculum experts, Ministry personnel, Ontario Teachers' Federation representatives (OTF), educational book publishing representatives and school board personnel suggested areas of concern with quality curriculum and instructional learning materials. Additional interviews with representatives from the Canada Studies Foundation,[10] Scottish Educational Research Council,[11] and those with knowledge of publishing in the Netherlands[12] contributed information on issues of learning materials. With the assistance of a research librarian,[13] further relevant literature was identified and reviewed.[14]

The above information, coupled with a review of the related literature served as the basis of the learning materials instruments design. Pre-testing of all five instruments was conducted informally, due to the pressure of time, by inviting suggestions from the personnel noted above. Given the focus of the report as identifying issues and trends in learning materials during declining enrolments, it was felt that a more extensive pre-test was not necessary. Care was taken to ask questions in a clear and precise manner, avoiding ambiguous terminology. Instruments contained some similar questions for comparison between board and teacher responses. Open-ended questions were included in all instruments to provide respondents with the opportunity to express individual opinions. Five different instruments were distributed--two for educational book publishers with

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[10] R. Anderson, Director, Canada Studies Foundation.

[11] B. Dockrell, Director, Scottish Research Council. See Appendix A.

[12] C.A. Van Houten, *A Pragmatic Approach to Systematic Evaluation in Developing Curriculum Materials. Procedures for Implementing Evaluation in Educational Product Development.* Department for Research and Development, Evaluation Unit, Educational Publishing Cie., Wolters - Noordhuff luc., Groningen, The Netherlands, 1978.

[13] D. Berg, Research Librarian for Curriculum Task Force, CODE.

[14] Bibliography of Additional Sources. See Appendix B.

one for company presidents and the second for staff involved in learning materials development and production, one for OTF teachers and two for senior staff at the board level. Each of the instruments will be discussed in terms of development, survey procedures, classification of questions and data analysis.

## *PUBLISHER INSTRUMENTS*

### *Development*

Two instruments were designed for the educational book publishing industry, one for the company presidents[15] and one for employees.[16]

### *Survey Procedures*

Addressing representatives of the Canadian Book Publishers' Council and the Association of Canadian Publishers at a March 1978 meeting, Dr. Jackson requested the completion and return of these instruments, distributed during the meeting.

### *Classification of Questions*

Questions were directed at obtaining the following information on commercial learning materials:

1. Influence of: a) company policy,
   b) Ministry guidelines,
   c) involvement of different personnel,
   d) sources of ideas for product planning;
2. Teacher and board perceptions of Circular 14;
3. Measures of educational effectiveness;
4. Procedures for determining authorship;
5. Manuscript development;
6. Planned alternatives to the textbook; and
7. Professional development opportunities.

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[15]Questionnaire on Company Policy. See Appendix C.

[16]Individual Staff Questionnaire. See Appendix D.

*Data Analysis*

Of the forty-eight sets of instruments distributed, only four instruments (all from the same company) were returned at the time of this writing, August 1978.[17] As the author felt this would not be representative of the industry as a whole, emphasis was placed instead on writings about the publishing industry with information obtained largely from their own publication (*Quill and Quire*) and from other authoritative sources on educational book publishing.

*BOARD INSTRUMENTS*

*Development*

A total of seven instruments were developed for school boards by the Curriculum Task Force. Two of the instruments, Instrument V,[18] (Curriculum and Instructional Materials) and Instrument I,[19] (Educational Goals and School Programs: Section F, Program Change and Section G, Solving the Problems) served as sources of data for this report. Instrument V obtained board personnel opinion as to the effect of declining enrolments and reduced resources on the preparation and use of quality curriculum materials.

*Survey Procedure*

The seven instruments were sent as a package in March 1978 by special delivery to all 193[20] Ontario school boards. Addressed postage-paid return

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[17]Distribution of the instruments with the formal approval of the Canadian Book Publishers' Council and the Association of Canadian Publishers would no doubt have resulted in a higher rate of return. This was not considered a feasible alternative due to the constraint of time.

[18]Instrument V, Curriculum and Instructional Materials. See Appendix E.

[19]Instrument I, Educational Goals and School Programs: Section F, Program Change and Section G, Solving the Problems. See Appendix F.

[20]Directory of School Boards for Ministry of Education, published by Ministry of Education, 1978.

envelopes were provided in the package of Instruments. A covering letter requested that the different Instruments be completed by board office personnel with job responsibilities most related to the content of the Instruments.[21]

*Classification of Questions*

Questions were directed at obtaining information on the following:

1. Field testing of local and commercial materials;
2. Ministry Book Purchase Plan;
3. Circulars 14 and 15;
4. Board allocation of resources for development and implementation;
5. Influences on board curriculum decision-making;
6. Usefulness of commercially and locally developed materials for curriculum development;
7. Improvements necessary in commercial and local materials;
8. Commercial and local materials as sources of ideas;
9. Changes in reliance on sources of learning materials;
10. Changes needed in specificity of learning materials;
11. Sources of information for new learning materials;
12. Influences on choice of classroom learning materials;
13. Instructional time spent with learning materials;
14. Process of board guideline implementation;
15. Learning Materials Development Plan; and
16. Changes in program practices.

*Data Analysis*

All 90 usable returns were processed by a team of data processing experts at the Ontario Institute for Studies in Education. Simple frequency distributions, means, medians and modes for all questions were analyzed on a numeric basis. A summary was also made of the non-numeric, written responses. Adjusted frequencies were used in all cases and percentages were rounded off to the nearest whole number.

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[21] See Appendix E for sample of covering letter.

## TEACHER INSTRUMENTS

### *Development*

One instrument[22] (Questionnaire on Curriculum Change) was developed to obtain information from teachers on the effects of declining enrolments, on developing instructional materials and on program change.

### *Survey Procedure*

The teachers were selected at random by the Ontario Teachers' Federation computer. The instrument was mailed in April from the Curriculum Task Force to 1062 Ontario teachers with a covering letter requesting support.[23] Elementary, secondary, male, female, Separate School and French language instruction teachers were surveyed.

### *Classification of Questions*

Questions were directed at obtaining information on the following:

1. Ministry Book Purchase Plan;
2. Influences on instruction;
3. Usefulness of commercially, locally and personally developed materials as a resource;
4. Improvements necessary in commercial and local materials;
5. Usefulness of Ministry guidelines as a resource;
6. Sources of information for new learning materials;
7. Commercial and local materials as a source of ideas;
8. Process of curriculum materials implementation;
9. Circulars 14 and 15 as a resource;
10. Changes in program practices.

### *Data Analysis*

All five hundred and thirty-seven usable returns were received in time for the final data analysis in July 1978. Teachers' returns received the same data analysis as the board returns.

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[22] Questionnaire on Curriculum Change. See Appendix G.

[23] See Appendix G for sample of covering letter.

Although demographic information was collected, a fine grain analysis of this data was not undertaken as, given the time available, this report was focusing primarily on general trends. For example, responses have not been differentiated by OTF affiliate, (e.g., OPSMTF, FWTAO, OSSTF, AEFO, OECTA), size of board, or Ministry of Education region.

*INSTRUMENT QUESTIONS COMPRISING THE TABLES*

Instrument questions constitute the tables appearing in the report. Selected questions were featured for the table "Value of Potential Solutions" as contributing to the issue of learning materials. Similar questions across board and teacher instruments constitute different tables in this report.[24]

This report, divided into the five major parts described previously under the "Purpose," will begin with a focus on Ministry guidelines and policy related to learning materials for Ontario educators.

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[24]A chart for the tables of data analyzed in the three instruments appears in Appendix H.

## FOCUS ON MINISTRY GUIDELINES AND POLICY

It has been said that "any system of universal education is ultimately tested at its margins"[25] by its ability to educate gifted and handicapped as well as "average" youngsters. The purpose of education is operationalized through the curriculum, which contributes to an organized learning environment and in some measure imposes constraints on the educational program offered. A comprehensive view of curriculum may be "that which results from a preconceived idea or value position about the purposes of education and constitutes an educational program for fulfilling that purpose."[26]

The stated goals of the Ontario Ministry of Education, shared by the 193 school boards throughout the province, reinforce the concepts of educational quality and equality for all. These goals are that: students' individual differences will be accommodated and equality of opportunity for students will be provided.[27]

During the curriculum decentralization of the 60s and early 70s, the Ministry curriculum guidelines became broad and generalized and more responsibility was given to local educators to develop courses of study and curriculum in elementary and secondary schools. Although programs of high quality were developed, many teachers since 1975 have increasingly called for more detailed guidelines and parents have expressed concern for clearer program expectations.

The Minister acknowledged the need for balance between local autonomy and Ministry prescription, and consequently assumed greater responsibility

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[25] L. Cremin, in C.E. Silberman, "Technology is Knocking at the Schoolhouse Door," *Fortune*, Vol. LXXIV No. 3, Time Inc., 1966.

[26] Talmage and Eash, *Paradigm for Designing Evaluation Studies*, p.1.

[27] Ontario Ministry of Education, *The Formative Years* (Toronto: 1975), p. 4.

for direction, expectation and standards of student achievement in the new guidelines. In addition, the Ministry's new curriculum policy placed even more emphasis on local curriculum development as "practising teachers, principals, subject consultants and other representative educators will play an equal partnership with Ministry officials in the preparation of curriculum materials emanating from the Ministry."[28] In short, steps would be taken to ensure that practical and usable materials could be developed by local and provincial writing teams to accommodate the varying needs and abilities of students in schools according to the new guidelines.

*CURRICULUM GUIDELINES*

*K-6*

Provincial curriculum policy is available in two publications: *The Formative Years*, and *Education in the Primary and Junior Divisions*.[29] The Ministry also produces 13 curriculum support documents as pieces of practical advice to teachers in following the policy.[30] All educational programs are described in terms of goals and objectives (the expectations for a program), activities (the things done by students and teachers within the program), resources used (time, people, places, things), and evaluation procedures (the ways of assessing the progress and results of a program).[31]

*7-13*

Present policy requires that teachers adhere to the Ministry of Education curriculum guidelines in designing courses of study for the intermediate (7-10) and senior divisions (11-13). Problems of overlap

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[28] *Dimensions*, Jan./Feb., Vol.11, No.1, 1977, p. 4.

[29] Ontario Ministry of Education, *Education in the Primary and Junior Divisions* (Toronto: 1975).

[30] *Interim Report. The Missing Pupils in the Schools of Ontario Today and Tomorrow: A Statement of Conditions, Causes and Issues*, (CODE), 1978, p. 178.

[31] J. Gilbert et al., *A Hard Act to Follow: Notes on Ontario School Law*, University of Toronto, Guidance Centre, 1976, p. 47.

can exist in the same school between the Junior and Intermediate guidelines, or Intermediate and Senior guidelines. With forty-two guidelines[32] for grades 7-10 or Circular $I_1$: *The Adolescent Years* and the seventy-seven guidelines[33] for Circular HS1: *Secondary School Diploma Requirements* the development of curricular learning materials for this overlap is further complicated by the delay in publication of Circular $I_1$.[34] Each of the approximately 135 guidelines provides a framework for planning courses. The framework is as follows:

. a rationale for courses developed from the guideline;
. a statement of the broad objectives for such courses;
. a description of possible content and organization;
. descriptions of possible approaches to teaching courses;
. approaches to student and program evaluation; and
. methods for organizing the planning of courses.[35]

Curriculum development at the Ministry of Education for 1976-78 is directed toward more specific and detailed guidelines and policy, more emphasis on support information and curriculum ideas for teachers. The Ministry of Education Regional Offices are to ensure that policy including curriculum policies are clearly communicated, adhered to and expressed in program outlines and courses of study. Systematic reviews are to be conducted to check for congruence with local needs.[36]

A series of tables follow in which teachers and boards report their perceptions on the value of Ministry guidelines both as a potential

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[32]Ontario Ministry of Education, *Circular 14 Textbooks 1978* (Toronto: 1978), pp. 1-2.

[33]Ibid., pp. 2-3.

[34]Ontario Ministry of Education, *General Guideline, The Intermediate Years: Provincial Policy for the Intermediate Division* (Working Draft of Proposed Document), (Toronto: 1975).

[35]Gilbert, *A Hard Act to Follow*, p. 60.

[36]J. Storey, address to Dr. Connelly's Doctorate Seminar, February, 1978.

solution to the problem of declining enrolments and their use as a teaching resource. The character and content of the guidelines influence the process of curriculum planning and development with concomitant implications for the development and selection of learning materials.

## *TEACHER AND BOARD PERCEPTIONS OF MINISTRY GUIDELINES*

### *Value of Potential Solutions*

Teacher and board perceptions of changes in the guidelines and the extent to which these are viewed as potential solutions to the problems of declining enrolments are summarized below in Table 1.

TABLE 1

VALUE OF POTENTIAL SOLUTIONS

| Board N = 90<br>Teacher N = 537 | NO VALUE | | LITTLE VALUE | | MODERATE VALUE | | MAJOR VALUE | |
|---|---|---|---|---|---|---|---|---|
| | Board | Teacher | Board | Teacher | Board | Teacher | Board | Teacher |
| Increase detailed specification in Ministry Guidelines | 17 | 16 | 16 | 28 | 31 | 34 | 36 | 22 |
| Specify a core program for the elementary schools | 10 | 6 | 24 | 12 | 33 | 39 | 33 | 43 |
| Reduce number of Guidelines in secondary schools, thereby reducing range of curriculum content | 27 | 25 | 23 | 43 | 35 | 24 | 15 | 7 |
| Reduce the time and effort spent by boards "figuring out" Ministry Guidelines | 14 | 17 | 24 | 24 | 23 | 27 | 39 | 32 |

All figures expressed as percentages.

The majority of both teachers (56%) and boards (67%) see moderate to major value in increased specificity in Ministry guidelines as a potential solution to the problem of declining enrolments. Approximately 60% of both boards and teachers also see potential value in reducing the time and effort spent by boards in figuring out Ministry guidelines. While the majority of teachers (68%) see little value in reducing the number of guidelines to decrease the range of curriculum content, board respondents are divided on this matter. Both teachers and boards support specifying a core program for both elementary and secondary schools. Teachers see greater value in this item as a potential solution than do boards.

From these results it appears that teachers desire the diversity of guidelines but want a clearly articulated core within the guidelines. Boards also see value in increased specificity and outline of core programs. Given this increased specificity, learning materials may become more closely aligned with guideline intents.

*Board Perceptions of Ministry Guidelines*

Table 2 supports the conclusion that boards will increasingly rely over the next five years on the Ministry guidelines as a resource for the development and selection of learning materials. Board perceptions on the need for specificity in Ministry guidelines are also discussed.

TABLE 2

CHANGES IN RELIANCE AND NEED FOR SPECIFICITY
IN MINISTRY GUIDELINES

| | MUCH DECREASE | | SOME DECREASE | | NO CHANGE | | SOME INCREASE | | MUCH INCREASE | |
|---|---|---|---|---|---|---|---|---|---|---|
| Board N = 90 | Reliance | Specificity | Reliance | Specificity | Reliance | Specificity | Reliance | Specificity | Reliance | Specificity |
| Ministry of Education Guidelines | - | - | 4 | 4 | 30 | 15 | 24 | 42 | 42 | 59 |
| All figures expressed as percentages. | | | | | | | | | | |

Eighty-one per cent of board respondents state the need for increased specificity in Ministry guidelines and 66% cite an increased reliance on the guidelines for curriculum direction. It appears that the Ministry is moving in a direction responsive to the wishes of senior staffs in boards. The reported increase in reliance and need for specificity in the guidelines may partially result from the delay in an official policy statement for *The Adolescent Years* (Circular $I_1$). Nonetheless, the stated board preferences for increased specificity and reliance on Ministry guidelines would seem to indicate an increasing use of the guidelines as a major resource for local planning and development.

*Teacher Perceptions of Ministry Guidelines*

The extent to which teachers perceive guidelines as a useful resource for their instructional planning and decision-making[37] has implications for the character of support documents and other resource materials. Teacher perceptions are expressed in Table 3.

TABLE 3

TEACHER PERCEPTION OF USEFULNESS OF MINISTRY GUIDELINES AS A TEACHING RESOURCE

| Teacher N = 537 | NOT AT ALL | SMALL EXTENT | MODERATE EXTENT | MAJOR EXTENT |
|---|---|---|---|---|
| Objectives | 9 | 23 | 42 | 26 |
| Content | 11 | 33 | 39 | 17 |
| Activities for students | 25 | 46 | 23 | 6 |
| Extra Materials | 30 | 42 | 21 | 7 |
| Diagnosis | 37 | 40 | 19 | 4 |
| Evaluation | 30 | 44 | 19 | 7 |
| Instructional strategies | 27 | 39 | 28 | 6 |
| Organization | 23 | 36 | 32 | 9 |
| Clarifying Curriculum Purposes and Goals | 13 | 25 | 38 | 24 |
| Professional Development during implementation | 29 | 35 | 27 | 9 |

All figures expressed as percentages.

[37] J. Zahorik, "Teachers' Planning Models," *Educational Leadership* (November 1975), pp. 134-139.

Teachers report Ministry guidelines as a resource to a greater extent for objectives (68%), clarification of goals and purposes (62%) and content (56%). Approximately 25% find the guidelines a major teaching resource for objectives, goals and purposes and, to a lesser extent, content, whereas the remaining items are only marginally represented. The following are cited in descending order as inadequately represented in the guidelines: diagnosis (77%); evaluation (74%); extra materials (72%); activities for students (71%); instructional strategies (66%); professional development (64%); and organization (59%).

It appears then that teachers must refer to other support documents and resource materials for the majority of their instructional planning and decision-making.

At present, the Ministry of Education identifies through Circulars 14 and 15 and supports through the Book Purchase Plan and the Learning Materials Development Plan, the development and selection of approved learning materials.

*CIRCULAR 14 AS RESOURCE FOR EDUCATORS*

Since 1889 there have been two prescriptions regarding the use of official textbooks: first, that a teacher use and permit to be used only approved textbooks, and secondly, that a principal ensure that all textbooks have been approved in accordance with the Education Act.[38] Educators may, on successful application to the board and the Minister, use materials not on the approved list of learning materials.

*Minister's Authority Regarding Texts*

Circular 14 is issued on the authority of the Minister of Education. The Circular lists textbooks and kits of a textual nature approved for use in publicly supported schools, throughout Grades K-13 in both English and French. To date 105 kits of a textual nature have been included.[39]

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[38]Education Act, 1974. Section 8(e), 146(12), 229(1)(k), 230(h).

[39]J. Fraser, Education Officer, Ontario Ministry of Education. Personal communication.

Each year Circular 14 is released in January, and its two supplements, 14A and 14B, are released in April and September respectively.

*Intent*

Among several purposes, Circular 14 is intended to encourage and develop Canadian authors and a strong Canadian educational publishing industry. At present 95% of the books listed in it are written or edited by Canadian citizens and manufactured in Canada.[40] Out of the top thirteen publishers with multiple titles in Circular 14, nine publishing companies are Canadian owned. Circular 14 has grown from 146 titles in 1948-50[41] to approximately 2167 in 1978.[42] The multiple listing of texts serves to facilitate teacher choice of varied resources. It is policy not to list Special Education materials in Circular 14 since these, in general, do not fit the usual textbook pattern of design or use.

*Review Process for Learning Materials Approved*

Circular 14 is considered by the Ministry as an "instrument to assist in the improvement of instruction and learning."[43] To be considered for inclusion, nine copies of a title are submitted to the Ministry and are reviewed by seven independent external evaluators and two officials in the Curriculum Branch. Six of the external evaluators are educators representative of the best teachers from across the province, and the seventh is a person with special expertise in detecting bias. This writer was unable to find written evidence of in-service training programs offered for reviewers by the Ministry or Teachers' Federations. However, sheets of criteria to be considered by evaluators are provided with each book being evaluated.[44] Although these evaluators possess knowledge and experience

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[40] J. Storey, Program Development Seminar, p. 5.

[41] R. Rohmer, *Royal Commission on Book Publishing. Canadian Publishers and Canadian Publishing*, 1973, p. 175.

[42] J. Fraser, Ontario Ministry of Education. Personal communication.

[43] Gilbert, *A Hard Act to Follow*, p. 65.

[44] Ontario Ministry of Education, Criteria for Textbook and Kit Evaluation. See Appendix I.

of materials selection largely derived from personal classroom experience, it is felt that the important task of reviewing learning materials for provincial approval requires an expertise and skill not readily gained without specialized training.

Learning materials approved for Circular 14 must be "of sound scholarship and contemporary relevance," and the "approach . . . broadly consistent with the Departmental Guidelines."[45] However, evaluators frequently lack adequate information from publishers in the form of program guides and teacher's manuals accompanying the learning materials under review. Presently Ontario is the only province which *does not* require that publishers submit manuals and teacher's guides for evaluation wherever available. Without this requirement text materials are approved in isolation from the schema, suggested teaching approaches, philosophy and method embodied in the learning materials program guides and teacher's manuals. The problem is one of teacher selection of approved learning materials which may in fact not have been approved if the guides had also been reviewed.

*Choice of Learning Materials*

There are explicit directions for the protocol concerning approval of new or experimental courses and the use of textbooks not listed in Circular 14.[46] In the selection of textbooks from Circular 14 guidance for teachers, principals and supervisory officers is limited to noting the date of publication, title, publisher, author(s), hard or soft cover and net price. Learning materials are listed by guideline. Although single study copies of particular learning materials may be available in the school through the Book Purchase Plan, teachers must correspond directly with the publisher for detailed information on field-test results.

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[45]Gilbert, *A Hard Act to Follow*, p. 65.

[46]Ontario Ministry of Education, Circular 14, 1978, p. 8.

## CIRCULAR 15 AS RESOURCE FOR EDUCATORS

### *Intent*

As a companion document, Circular 15[47] is a guide to supplementary learning materials produced by Canadian authors and publishers. It is estimated that Circular 15 titles probably represent more than half of the Canadian holdings of Canadiana.[48] This and the separate French language edition, Repertoire 15, list Canadian curriculum and instructional materials chosen for appropriateness to supplement the Ministry guidelines for more effective teaching and learning. The intent is to provide learning materials pertinent to individual and local needs.[49] This comprehensive collection of Canadiana provides bibliographic description of alphabetically listed materials, a short annotation and suggestions for curriculum applications. Every attempt is made to relate these materials to specific Ministry guidelines within each of the four main divisions of Ontario curriculum: Primary, Junior, Intermediate and Senior.[50]

Both Circulars 14 and 15 are resources for teachers and boards. Responses to instrument questions reflect the general extent to which the Circulars are perceived as useful by users.

## BOARD AND TEACHER PERCEPTIONS OF CIRCULARS 14 AND 15

### *Circulars 14 and 15 as Board Resource*

Board perceptions of Circulars 14 and 15 as a resource appear in Table 4.

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[47]Ontario Ministry of Education, Circular 15. Last published in 1974.

[48]"Canadian Content Low in Toronto Schools," *Quill and Quire*, November 1976, p. 1.

[49]Gilbert, *A Hard Act to Follow*, p. 68.

[50]Ibid., p. 68.

TABLE 4

CIRCULARS 14 AND 15 AS BOARD RESOURCE

| Board N = 90 | NOT AT ALL | SMALL EXTENT | MODERATE EXTENT | MAJOR EXTENT |
|---|---|---|---|---|
| Circular 14 meeting instructional needs | 1 | 4 | 40 | 55 |
| Circular 15 meeting instructional needs | 5 | 16 | 55 | 24 |
| Circular 14 as a resource for local materials development | 13 | 28 | 42 | 17 |
| Circular 15 as a resource for local materials development | 18 | 38 | 37 | 7 |
| Satisfaction with Circular 14 | 2 | 6 | 48 | 44 |
| Satisfaction with Circular 15 | 7 | 9 | 55 | 29 |

All figures expressed as percentages.

Whereas board personnel express considerable satisfaction with Circulars 14 (95%) and 15 (79%) as meeting local instructional needs, 59% perceive Circular 14 as a resource when planning for local materials development. Circular 15, the 1974 document relating available curriculum materials to specific Ministry guidelines is used to a lesser extent (44%) by board personnel for local curriculum and instructional materials development. Boards generally indicate a high degree of satisfaction with Circulars 14 (92%) and 15 (84%).

Although boards are highly satisfied with the two Circulars for meeting instructional needs, it appears that the two Circulars are less useful as a resource of ideas for local materials development--particularly Circular 15. Despite the fact that Circular 15 is now almost five years old it still appears to be held in high regard for planning and development

purposes. It may be that Circular 14 is not perceived as useful by approximately 40% of board personnel because of the more provincial orientation of the materials.

*Circulars 14 and 15 as Teacher Resource*

Perceptions of Circulars 14 and 15 as a teacher resource for selection of materials appear in Table 5.

TABLE 5

CIRCULARS 14 AND 15 AS TEACHER RESOURCE FOR SELECTION OF MATERIALS

| Teacher N = 537 | YES | NO | NOT APPLICABLE |
|---|---|---|---|
| Consulting Circular 14 | 68 | 20 | 12 |
| Consulting Circular 14 under advisement | 68 | 24 | 8 |
| Consulting Circular 15 | 23 | 55 | 22 |
| All figures expressed as percentages. | | | |

The fact that 68% of the teachers consult Circular 14 and an equal percentage report doing so under advisement suggests that many teachers may not be aware of the legislation surrounding Circular 14. Approximately 20% neither consult it nor do so under advisement. Perhaps most surprising are the 77% who either do not use Circular 15 (55%) or consider it not applicable (22%) as a resource for Canadian materials. In effect, over one third of the teachers *do not* use Circular 14, and almost 80% *do not* use Circular 15. It appears that at least one third of the respondents may in fact *not* be finding Circular 14 "contemporary and adequate to the task of serving guidelines."[51]

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[51] J. Storey, Program Development Seminar.

*Circular 14 as Source of Information*

Board and teacher perceptions of Circular 14 as a source of information on new learning materials appear in Table 6.

TABLE 6

SOURCE OF INFORMATION ON NEW LEARNING MATERIALS

| Board N = 90<br>Teacher N = 537 | NOT AT ALL | | SMALL EXTENT | | MODERATE EXTENT | | MAJOR EXTENT | |
|---|---|---|---|---|---|---|---|---|
| | Board | Teacher | Board | Teacher | Board | Teacher | Board | Teacher |
| Circular 14 | 2 | 22 | 14 | 30 | 34 | 25 | 50 | 23 |

All figures expressed as percentages.

In reported practice it appears that boards (84%) as compared with teachers (48%) rely to a greater extent on Circular 14 as a source of information on new instructional materials. Approximately one half of the teachers cite Circular 14 as being a minor source of information for new learning materials. Of all the Ministry guidelines available, approximately 20% of board respondents reported on an open-ended question that Circular 14 is the least useful for Science, Mathematics and Physical Education materials.

*Use of Non-Circular 14 Materials*

Table 7 addresses board estimates of the percentage of both instructional time spent and elementary and secondary subjects taught using non-Circular 14 materials.

TABLE 7

AMOUNT OF INSTRUCTIONAL TIME SPENT AND
PERCENTAGE OF ELEMENTARY AND SECONDARY SUBJECTS TAUGHT
USING NON-CIRCULAR 14 MATERIALS

| Board N = 90 | 0-5% | 6-15% | 16-30% | 31-50% | 51-100% | NO RESPONSE NOT APPLICABLE |
|---|---|---|---|---|---|---|
| Instructional time spent not on Circular 14 Materials | 14 | 23 | 21 | 10 | 4 | 28 |
| Percentage of *subjects* using *non*-Circular 14 materials more than 50% of the time - elementary | 28 | 24 | 12 | 7 | 2 | 27 |
| Percentage of *subjects* using *non*-Circular 14 materials more than 50% of the time - secondary | 20 | 14 | 10 | 7 | - | 49 |

All figures expressed as percentages.

The significantly high percentage of board respondents reporting "No Response" or "Not Applicable" for the three questions constituting the table suggests some potential reasons. As almost half chose "No Response" for the question on Circular use in secondary schools, board personnel may not know the extent of alternative material use. The same possibility exists for the elementary level. Comparative teacher data is not available as these questions were omitted on the teacher instrument because it was thought that teachers do not have sufficiently varied subject-matter teaching experience to answer for all subjects.

Of those responding to the question on instructional time, approximately 60% of the boards report that up to 30% of instructional time in their board is spent using materials *not* on the approved Circular 14 list. This is possible because of the supplementary materials provision available to educators.

Whereas 67% of the boards report elementary schools teaching up to 30% of the subjects using non-Circular 14 materials, more than 50% of the time, 44% report secondary schools teaching up to 30% of their subjects using non-Circular 14 materials more than 50% of the time.

It therefore appears that considerable use is made of supplementary materials in schools. Knowledge about the nature and content of these supplementary materials and the subjects for which they are found necessary would have implications for publishers, local learning materials developers, Ministry of Education policies and practices surrounding Circular 14, and learning materials evaluation committees. The observation that a significant percentage of Ontario educators is using learning materials not on Circular 14 suggests the need for reassessing the match among approved learning materials available and learner and teacher needs.

Two additional Ministry plans, the Book Purchase Plan and the Learning Materials Development Plan, are discussed next. The former provides for a free copy of recently approved learning materials to participating schools and the latter serves to encourage the development and production of Canadian learning materials.

*BOOK PURCHASE PLAN*

*Intent*

Since its inception in 1974, the Book Purchase Plan has provided Ontario educators with the opportunity of ordering one copy of each new learning material approved for listing in Circular 14 and its supplements. Generally, Ontario school administrators select titles of interest from a computerized list of these approved materials, and this list is returned to the Ministry. Book Purchase Plan personnel relay these requests to about forty Canadian publishers who in turn forward the learning materials to identified schools. The Ministry absorbs the cost. In four years the Plan has provided about 5205 Ontario schools and about 132 school boards[52] with more than 1,300,000 free copies of Ministry approved Canadian textbooks.[53] The program would appear to be highly successful as, on the average, 92% of schools and school boards have taken advantage of this service.[54] This Plan has cost the Ministry $1,850,000 for 1978 alone.

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[52] J. Fraser, Ontario Ministry of Education. Personal communication.

[53] *Dimensions*, Vol.11, No.5, March/April, 1978.

[54] Ibid.

*Ministry Book Purchase Plan as Resource*

Teachers and board personnel were asked to indicate the extent to which the Plan was an aid in the selection of learning materials. Data appears in Table 8.

TABLE 8

MINISTRY BOOK PURCHASE PLAN

| Board N = 90<br>Teacher N = 537 | NOT AT ALL | | SMALL EXTENT | | MODERATE EXTENT | | MAJOR EXTENT | |
|---|---|---|---|---|---|---|---|---|
| | Board | Teacher | Board | Teacher | Board | Teacher | Board | Teacher |
| Aid in selection of materials | 2 | 48 | 13 | 25 | 30 | 20 | 55 | 7 |
| All figures expressed as percentages. | | | | | | | | |

Approximately 85% of board personnel report the Plan facilitates selection of learning materials to a moderate or major extent as compared with approximately 27% of teacher respondents. Almost half of the teachers (48%) indicate that the Plan has not helped them in selecting materials and an additional 25% cite it as a help to a small extent.

It would appear that the Book Purchase Plan has been quite successful as 92%[55] of schools and school boards have participated in it and 85% of the present study board respondents express satisfaction.

That a high percentage of teachers report the Plan as being minimally helpful as compared with board staff opinion, suggests that teachers may not be aware of the Plan and the related materials as the details of the Plan are communicated directly to administrators. Information on the Plan such as the article in the March/April issue of *Dimensions*

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[55] J. Fraser, Ontario Ministry of Education, Personal communication.

1978, and available in quantity in schools, may increase teacher awareness of the Plan.

A description and report on the second Ministry of Education plan, the Learning Materials Development Plan, follows.

*LEARNING MATERIALS DEVELOPMENT PLAN*

*Intent*

The Plan was initiated in 1975 to support the development and production of Canadian print and non-print learning materials of province-wide applicability, otherwise considered economically unprofitable for publishers to develop.[56] Funds are available on a competitive basis, once yearly, to publishers and producers, non-profit organizations and individuals submitting: high quality proposals for the development of learning materials for all subjects in the French language; materials for French or English as a second language; materials examining social and individual values; culturally based reading materials for students of native ancestry; Canadian literary works for children in the primary division; special education materials in both English and French; materials focusing on the multicultural community; and illustrative materials in the automotive, electrical and computer fields relating to the technical education program.[57]

Through the four competitions in 1975, 1976, 1977 and 1978, the Ministry of Education has spent a total of $2,902,640 funding about 250 projects submitted by Canadian publishers, producers (such as, school boards, association, institutions) and individuals. Individual grants up to $40,000 were made to Ontario-based publishers.[58] Annual brochures announcing the guidelines for application to the Plan are mailed to all Ontario schools.[59] As of August 4, 1978, thirty-four boards have applied

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[56]J. Storey, Program Development Seminar, p. 6.

[57]F. Moscall, Education Officer, Ontario Ministry of Education. Personal Communication.

[58]Ibid.

[59]Ontario Ministry of Education, Learning Materials Development Plan, 1978. See Appendix J.

to the Plan for funding. Thirteen boards (38% of those applying) have been successful in receiving funds. The total amount of money received by these boards is about $147,217.[60]

*Board Use of the Learning Materials Development Plan*

Board data concerning the Learning Materials Development Plan follows in Table 9.

TABLE 9

THE LEARNING MATERIALS DEVELOPMENT PLAN

| Board N = 90 | NOT AT ALL | SMALL EXTENT | MODERATE EXTENT | MAJOR EXTENT | NO RESPONSE/ NOT APPLICABLE |
|---|---|---|---|---|---|
| Awareness of Plan | 4 | 17 | 26 | 40 | 13 |
| Board application for funds | 56 | 13 | 10 | 4 | 17 |
| Success of board in getting funds | 46 | 8 | 4 | - | 42 |
| Proposal resulting in a commercial product | 51 | 4 | - | - | 45 |
| Use of funded materials in board | 39 | 7 | 4 | 2 | 48 |
| Plans for use of Materials Plan in next five years | 22 | 19 | 13 | 3 | 43 |

All figures expressed as percentages.

Eighty-three percent of the board respondents indicate awareness of the Learning Materials Development Plan. Whereas 56% of the boards have not made application to the Plan, 27% of the boards since 1975 have and 35% intend to during the next five years. Twelve percent of the boards report success in getting funds. Although only 4% of the boards indicate that their proposal to the Plan resulted in a commercial product, 13% report using the funded product in their board. It appears that those

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[60] F. Moscall, Ontario Ministry of Education. Personal communication.

who received funds are using the product. More boards (35%) plan to make application to the Plan in the next five years.

*Open-Ended Comments*

Open-ended comments on the survey by board personnel were basically of two types: lack of knowledge that boards could apply for funds from the Plan and their perception that only French related materials would be funded.[61] Some assistance may be forthcoming on the issue of French materials as the Council for Ministers in Education has formed a committee on French Language Education. It intends to investigate the problem of text evaluation and to determine if a common pool of French language texts for all provinces would be feasible.[62]

Similar plans for Learning Materials Development existing in other provinces are described below.

*EXAMPLES OF LEARNING MATERIALS DEVELOPMENT PLANS - MANITOBA AND ALBERTA*

A similar plan in Manitoba[63] encourages work done by teachers during out-of-school time for up to ten days of working time. Support for material development in the form of consultant, technical and resource services is readily available.

Another variation on the Learning Materials Development Plan is that operated by the Alberta Department of Education. The Alberta Heritage Learning Resources Project, with a budget of 8.37 million dollars, is to develop Canadian materials for use in the province's schools. The advisory committee includes consumers, content specialists and publishers. A steering committee of civil servants and representatives from the Alberta

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[61]F. Moscall, Ontario Ministry of Education. Personal communication. The Plan permits development and production in both languages: 1975-77--English and French, 1978--French as a second language. Allocation of funds: 60% English, 30% French.

[62]J. Woodward, "Uniform Policy Needed for More French Texts," *Quill and Quire*, February 1977, p. 12.

[63]"Manitoba Learning Materials," *Quill and Quire*, October 1977, p.36.

Teachers' Association and the Alberta School Trustees Association provides specific direction for the project.[64]

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[64]"Alberta Government Funds Text Development," *Quill and Quire*, March 1978, p. 1-2.

## IMPLICATIONS AND RECOMMENDATIONS

The review of relevant literature and results from related teacher and board survey data on Ministry guidelines, policies and programs gives rise to several implications and associated recommendations for quality materials development, selection and use. These are listed as follows:

1. Circulars 14 and 15

   1.1 Quality learning materials may not always be approved by reviewers due to lack of formal training in learning materials assessment.

   It is recommended that reviewers of learning materials for Circular 14 approval receive in-service training in learning materials assessment.

   1.2 Informed selection of learning materials from Circular 14 presently requires that teachers subsequently refer to descriptions in publisher catalogues or else review available copies of materials. Given the pressure of time for learning materials selection and the individual lack of awareness of learning materials available through the Book Purchase Plan, it is unlikely that the most informed selections will be made.

   It is recommended that an annual Learning Materials Yearbook indexing major-approved learning materials be published as a comprehensive selection resource for teachers. Reviewers with varied expertise (e.g., teachers, subject matter experts, university faculty) would provide detailed product description including pertinent field-test and evaluation results.

   1.3 Given the 132 guidelines and the 2100 listings in Circular 14, teachers may experience difficulty making the best selections from the available alternatives.

   It is recommended that older learning materials be reviewed for relevancy and appropriateness.

1.4 As over 20% of teachers report not using Circular 14 and 55% not using Circular 15 in their selection of materials, it would appear that the Circulars are not as influential as intended.

It is recommended that a study be conducted to determine the reasons for this level of use.

It is recommended that the Ministry of Education, as part of a policy of continuous revision,

(a) make accessible to teachers, librarians, and resource centre personnel, actual resources that they can examine from both Circulars 14 and 15,

(b) formulate adequate procedures whereby prescribed materials not in use can be withdrawn.

1.5 As publishers are not required, in Ontario, to submit program guides and teacher's manuals for evaluation, neither reviewers of learning materials for Circular 14 approval nor practitioners can make the most informed appraisals of these materials.

It is recommended that a study be conducted to determine the desirability and efficacy of including teacher guides and program manuals in the review process.

1.6 Board data suggests that Ontario teachers use learning materials *not* on Circular 14 for a significant percentage of subjects and instructional time.

It is recommended that a study be conducted to reassess teacher and student needs for learning materials and the congruence between these needs and the approved learning materials available.

2. Guidelines

2.1 Ministry guidelines are not considered by teachers to have an extensive influence as a teaching resource.

It is recommended that a study be conducted to identify those aspects of guidelines found wanting by teachers and boards.

3. Learning Materials Development Plan

3.1 The issues of minimal board participation in the Learning Materials Development Plan and the low percentage of boards successful in obtaining funded proposals suggests insufficient knowledge, resources and skills related to proposal writing and learning materials development.

It is recommended that interested boards and teachers have access to those most knowledgeable in proposal writing and learning materials development.

4. Balance on Expenditure

4.1 Since the bulk of the educational dollar spent on learning materials is directed towards Language Arts and Mathematics materials, equality of opportunity within the approximately 130 Ministry guidelines is severely limited.

It is recommended that a study be conducted to better understand and reduce the disproportionate demand and provision of resources for established guidelines.

4.2 Considering increased costs for development of commercial learning materials and the 60% decrease in expenditure by educators on learning materials during the past ten years, it is questionable whether students of varied abilities and interests are being provided with sufficient and diverse quality learning materials.

It is recommended that a study be conducted to determine the optimal level of educational expenditure for learning materials.

It is recommended that the level of school expenditure on learning materials be monitored with the intent of maintaining, at minimum, an acceptable level of expenditure on learning materials.

EDUCATIONAL BOOK PUBLISHING

*INTRODUCTION*

The process of publishing learning materials is a complicated interdependent communication system with the potential for both a loss and gain of information at certain stages. This system has the potential for providing a broad base of knowledge and expertise. Each gatekeeper[65] has certain conceptions about what messages are communicated and need to be communicated through learning materials. The final product results from the interaction of these different influences. The following diagram characterizes these influences.[66]

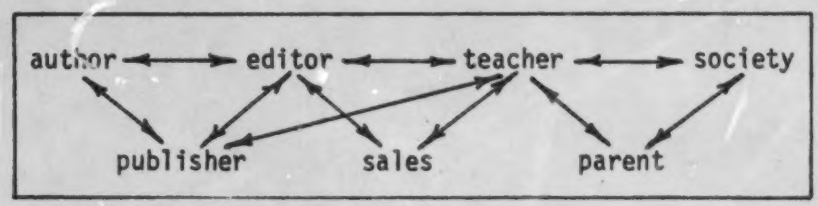


Figure 1. E. Broudy, "The Trouble With Textbooks," *Teachers' College Record* 77 (September 1975):16.

Learning materials are never the direct consequence of an author's or editor's conception, but inevitably result from a variety of compromises made to satisfy the opinions and demands of others.[67] Policy makers do not feature in the above characterization as publishers cannot afford to ignore them. Missing as significant influences are the learners and those who systematically study the process of teaching and learning. However, it is common for publishers to call upon educational consultants and academics for input at an early planning stage.

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[65]L. Cronbach, *Text Materials in Modern Education.* (University of Illinois, 1955), p. 16.

[66]E. Broudy, "The Trouble with Textbooks," *Teachers College Record* 77 (September 1975):16.

[67]Ibid., p. 16.

Recognizing the interactive nature of different influences on the planning and development of commercial learning materials, the following review will highlight both current concerns of the Canadian educational book publishers and expand on some aspects of the given interactive process.

## CURRENT CONCERNS

### *Financial*

Although the educational book publishing market is cited as a major source of income to the larger firms,[68] some Canadian-owned publishing houses are in a precarious state. For example, only 29% of textbooks were published by Canadian-owned houses in 1976, a drop from 46% in 1975.[69]

Since Ontario holds 47% of the country's school age population, publishers attempt to list their products in the Ministry approved Circular 14. Commercial learning materials are designed to complement the Ministry of Education guidelines. Publishers report that new Ministry guidelines necessitate the development of additional learning materials.[70] A drain on existing capital occurs with the production of diverse learning materials and related marketing costs. For example, marketing costs are approximately twice as high in Ontario as in other provinces.[71] Considerable capital expenditure then occurs in an "undefined marketplace where a policy of decentralized decision-making allows no earmarking of budgets for the acquisition of these new materials."[72] As a financial consequence, for

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[68] *The Publishing Industry in Canada.* Report, Secretary of State, 1977, p. 8.

[69] David McFadden, "Turning Point in Canadian Publishing," *Quill and Quire*, April 1977, p. 1.

[70] J. Nestmann, *The Educational Market.* Address by Executive Director of the Canadian Book Publishers' Council. Presented at a Seminar, 18 April 1978.

[71] M. Edwardh, President, Association of Canadian Publishers. Personal Communication.

[72] Nestmann, *The Educational Market.*

example, declining enrolments may force each publisher to specialize in one or two subject areas.[73] Publishers also experience difficulty in determining precise knowledge about core curriculum policy in Ontario's JK-13 curriculum.[74]

Approximately 1% of the total educational dollar is presently spent on learning materials.[75] Ontario has spent less on learning materials than any other province in Canada and consequently many of the materials produced in the last ten years are in limited use in Ontario schools.[76] The bulk of the total dollar expenditure for learning materials at the elementary level is for language arts and mathematics; at the secondary, mathematics, English language and literature.[77]

Given the effect of trends influencing the economy of the educational marketplace--declining enrolments, back to basics movement, Canadian materials policy, SI metric, inflation[78] and illegal photocopying[79]--the Canadian Book Publishers' Council has recommended 2.5% of the annual per pupil education allotment as necessary to provide each student with the best contemporary materials available.[80] It is noted that 2.5% was the 1967 level of expenditure in Ontario for learning materials.[81] The book publishing industry has been considering a lobbying effort with Teachers' Federations, home and school associations and local community

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[73] C. Hughes, "The El-Hi Market," *Quill and Quire*, June 1978, p. 11.

[74] Edwardh, personal communication.

[75] "Upswing in Educational Publishing," *Quill and Quire*, February 1976, p. 4.

[76] Edwardh, personal communication.

[77] Nestmann, *The Educational Market*.

[78] Ibid., p. 53-56.

[79] "Upswing in Educational Publishing," p. 4.

[80] Canadian Book Publishers' Brief to Commission, March 1978, p. 13.

[81] Edwardh, personal communication.

groups as well as elected officials.[82] Top priority for all educational publishers will be the "petitioning of provincial governments to take action to stimulate the purchase of Canadian materials by school boards."[83]

*Product Development*

Since 1950 an increasing diversity of educational learning materials used in the classroom has included the use of non-print materials, particularly manipulative materials and demonstrative equipment,[84] and teachers support the publishers contention that textbooks and other print materials are essential components of the curriculum in the classroom.[85]

*Alternatives to Texts*

Educational publishers' survival is dependent on the application of new ways of product development; however, they feel there are not many satisfactory alternatives to the textbook.[86] Publishers can save money by using less expensive paper stock, standardizing trim sizes, holding back print runs to do one large print run and using colour sparingly. The possibilities exist for more in-house composition of texts for even small companies.[87] There is also a move towards less expensive "consumable" workbooks[88] and profile books which serve directly the needs of the reader. One year texts may be bound in paper where wear is not as big a factor as cost. More materials may be produced that complement texts such as activities for teachers and students and more audio-visual equipment in

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[82]Glenn Witmer, *Quill and Quire*, January 1978, p. 1.

[83]Ken Waxman, "Needed: Planning, Judgment and Luck," *Quill and Quire*, February 1977, p. 7.

[84]National Textbook Company, Skokie, Illinois, 1977.

[85]Canadian Book Publishers' Brief, p. 3.

[86]Diane Pullan, "Textbook Prices Rising in 1978," *Quill and Quire*, February 1978, p. 14.

[87]D. Deiseach, Address to Canadian Book Publishers, March 1978.

[88]Pullan, "Textbook Prices Rising," p. 14.

the form of kits.[89] Custom publishing allows teachers to collect previously published and unpublished materials in book form for classroom use. Photo-offset printing makes it possible to produce facsimiles of written material without setting type. Even though there may be problems with copyright holdings, this approach has the benefit of speed.[90] Many of the strategies have already been tried elsewhere. The technology frequently exists for these alternative methods but problems often center on their effective administration by both publishers and educators.

It is reported that the average Canadian textbook in 1978 is written for the "large middle group of students."[91] There are some materials, however, for students of varying abilities in different subject areas. It is noted that there is a shortage of Special Education material.[92] Until recently, "textbooks have been planned and promoted with the purpose of persuading instructors or other educational authorities to prescribe them, while the preferences of the pupils and students for whom they are ultimately intended have of course concerned the publishers, but only indirectly."[93] The adequacy of this procedure is highly dependent on the accuracy with which teachers assess student needs, interests and abilities, when selecting learning materials. The complex interaction process of publishing learning materials will be discussed in terms of current practices for the different role components of writing, editing and selling. Educators, and to some degree the public, will be introduced as an influence on the quality of learning materials produced by publishers.

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[89] Waxman, "Needed: Planning, Judgment and Luck," p. 7.

[90] E. Klein, "The Custom Made Textbook: Have It Your Way," *Change* 7 (April 1975), pp. 17-19.

[91] Canadian Book Publishers' Brief, p. 3.

[92] Edwardh, personal communication.

[93] Royal Commission on Book Publishing, p. 68.

## INTERACTIVE VARIABLES

### *Writers of Learning Materials*

Competent authorship is just one of the many variables of text publishing[94] as generally authors are "recruited by editors after the publisher has decided what the book or program will be."[95] As writers of learning materials do not form a recognized group, hold little status and tend to work in isolation, their potential for influencing materials development is limited. It is difficult to find authors with both ideas and good writing skills. A large number of authors are practising teachers who have been identified as exceptional in the classroom, or academic faculty with subject-matter expertise and favorable publications to their credit. Multiple authorship is sometimes used to enhance credibility or to capitalize on individual specialties. Concerning the use of editorial consultants by publishers, promotional material is often misleading as consultants are rarely used to help develop manuscripts.[96] Consultants may be used to provide feedback on the developing manuscripts.

### *Editors*

As editors have responsibility for developing learning materials for society's learners, it has been claimed that they are more influential than the educational leaders like Dewey and Thorndike.[97] The job requires a broad knowledge of a variety of fields--education, psychology, sociology, evaluation--plus a seasoned understanding of teacher and student needs.[98] Even the best qualified editors who could encourage and facilitate quality learning materials development are subject to the constraints of authors

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[94]Broudy, "The Trouble with Textbooks," p.18.

[95]Ibid., p. 16.

[96]Ibid., p. 18.

[97]W. Schramm, "The Publishing Process," in *Text Materials in Modern Education*, ed. Lee J. Cronbach (Urbana, Ill.: Univ. of Illinois Press, 1955), pp. 129-165.

[98]Broudy, "The Trouble with Textbooks," p. 18.

on the one hand and publishers on the other. And the bottom line on any editorial innovation is whether or not it will sell.

*Sales*

Selling philosophies appear to vary from company to company. Many sales managers are teachers or former educational consultants and new sales representatives are often given an initial training program emphasizing features of the educational system. Most managers prefer to have resident representatives for given sales areas. Representatives have the problem of determining educator need for learning materials school by school.[99] Some Ontario sales representatives spend 90% of their time with individual schools. At the local level the sales representative needs to distinguish between those who make decisions about purchasing and those who influence the decision-making process. Representatives rarely have opportunities to schedule individual appointments with teachers at the elementary school level but do see the principal or vice-principal. Arrangements are usually made at this time to meet with the teachers either at a staff meeting or at a workshop. In secondary schools, representatives may spend more time with department heads than with principals and they often talk with individual teachers. Learning material displays or exhibits are another potential source of promotion with both elementary and secondary schools.[100] Most sales presentations rely heavily on testimonials from teachers, teacher educators or supervisors who have reviewed and adopted the materials. Empirical evidence of learning effectiveness of the materials is seldom supplied.[101]

Publishers distribute catalogues across Canada showing approved books by provinces and identifying those materials of Canadian origin by a maple leaf symbol, the implicit message being that these materials are

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[99] D. Pullan, "Selling in Canada: El-Hi, College," *Quill and Quire*, May 1978, p. 15.

[100] Ibid.

[101] J.G. Bennett, "The Need to Evaluate DE Instructional Materials," *Business Education Forum* 22 (May 1978), p. 22.

of high quality. Informed selection from these catalogues is difficult due to limited product description or lack of field-test results. This is in part due to Ontario's unique position on program and teacher manuals as a resource. Schema, philosophical approach and methodology available in the program guides are not required for learning materials evaluation in Ontario. Consequently, both materials evaluators and practitioners do not have the best possible information for making informed choices among alternatives. Similarly, some publishers have cited the lack of careful studies of what learning materials are actually used in classrooms.

Good sales representatives frequently report on perceived market demand by sending a proposal for additional materials development to the editorial department.[102] In this manner field editors monitor market demand and develop ideas for new learning materials. This form of feedback is rife with problems as representatives cannot possibly ask all the questions that need to be asked nor appreciate fully the meaning of responses obtained from a wide variety of subject-matter specialists.[103] And "rarely do salesmen's comments affect the content of a program or future program."[104]

"There is no necessary correlation between the sale of materials and their quality, that is, their usability in the classroom. The converse is equally true."[105]

*The Public*

While public opinion is determined in part by the content of the learning material used in schools, book publishers are frequently less receptive to new ideas as public controversy can adversely affect sales. For this reason publishers tend to function conservatively, producing learning materials that have been proven acceptable to the public and

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[102] Pullan, "Selling in Canada," p. 16.

[103] Proudy, "The Trouble with Textbooks," p. 21.

[104] Ibid., p. 23.

[105] Ibid., p. 22.

educators. Innovative ideas can be rejected by parents if they do not understand them. However, *informed* parents can appreciate the value of quality learning materials. While it is true that greater parent involvement could serve as the impetus for change, the general level of public interest and the delegation of authority to educators for the learning materials used in schools, reduces societal potential for impact. Tc significantly change the content of learning materials to include more realistic controversial issues requires a joint educator-publisher education of the public.

*SUMMARY*

Ideally the system of planning and developing commercial learning materials is responsive to student and teacher needs. Yet the complexity of the interdependent variables pervades the process, making the production of quality learning materials difficult. Typical problems in the process are summarized as follows: "The feedback is often inaccurate; editors can be isolated from the market; the market can be misread; authors ill-advised; salesmen confused; promotion inadequate; teachers either reluctant to change or not responsible for ordering their own materials; parents apathetic."[106] The opposite may also be true. However, the effectiveness of learning materials depends not only on publishers but is the shared responsibility of parents, teacher training institutions, teachers and motivated students. In short, meeting the needs of individual learners for appropriate and stimulating materials requires the informed cooperation and resources of all responsible parties.

*ALTERNATIVE MODELS*

*Example One - Publishing in the Netherlands*

Educational publishers' survival is dependent on the application of new ways of product development.[107] An approach for the systematic

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[106]Ibid., p. 32.

[107]Carol A. Van Houten, *A Pragmatic Approach to Systematic Evaluation in Developing Curriculum Materials. Procedures for Implementing Evaluation in Educational Product Development* (Groningen, The Netherlands: Department for Research and Development, Evaluation Unit, Educational Publishing Cie., Wolters-Noordhuff luc., 1978).

development of curriculum materials has evolved in an empirical fashion. This approach is controlled in a number of stages--evaluation cycles which integrate market factors and economical as well as educational data. This model allows the publisher to direct the developmental process and produce learning materials especially geared to be effective for certain pupils under specified educational conditions. It is given that the "ultimate goal for evaluation research of this type would be to develop educational materials suited to the user's educational setting and tools available, to avoid a mismatch of which the pupils would be the victims."[108]

*Example Two - Ontario Curriculum Institute*

In 1962, a Joint Study Committee of the Toronto Board of Education and the University of Toronto, supported by the Atkinson Charitable Foundation, concluded that curricular problems could only be solved by cooperative efforts of representative groups.

This Institute was managed by a Board of Directors nominated by, but not representing as such, the founding bodies. A cooperative but independent relationship existed between the Department of Education and the Ontario Curriculum Institute. It was thought that curriculum planning is a political and ideological process and that to have impact in schools, an independent agency was needed to operate outside the formal political structure.

During its three years of operation, the Ontario Curriculum Institute involved representatives of the Ontario School Trustees' Council, the Department of Education, the Ontario Teachers' Federation, the Universities of Ontario and professional school persons. Its purpose was to examine, provide a perspective and generate materials for "theories of learning and their application, the use and function of instructional aids, the probable implications of social change, continuing education for youth and adults, the inter-relationship of all subject-matter fields, and the creative process as expressed in literature, art, music, drama."[109] The

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[108] Ibid., p. 17.

[109] J.R.H. Morgan, "The Ontario Curriculum Institute," *Education* 5 (1965), p. 81.

curriculum was examined from the points of view of content, of sequential organization, and of the nature of the learning process. Committees of administrators, psychologists, social scientists, elementary and secondary panel educators, university faculties and knowledgeable lay persons met together to place issues and potential actions into a proper perspective against the total curriculum and their knowledge of the learning process.[110] During its short life this agency adopted a consumer protection stance and trained many writers of new learning materials in a manner similar to that used by the Educational Products Information Exchange[111] in the United States to train product evaluators. Many curriculum support documents were developed through interagency cooperation and support.

Financial pressures were relieved in part by the use of participant staff on leave from cooperating organizations. Operating funds were made available by the Ontario Teachers' Federation, the Department of Education, Universities (on a per student allotment) and School boards (on a per pupil basis).

The Ontario Curriculum Institute's functions and activities were absorbed by the Ministry of Education during the reorganization of the Curriculum Branch in 1967. With this action, the strength of an independent organization operating outside the formal political structure of Ontario disappeared.

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[110] Ibid., p. 81.

[111] D. Komoski, *Pilot Guidelines for Improving Instructional Materials through the Process of Learner Verification and Revision* (1975).

## IMPLICATIONS AND RECOMMENDATIONS

The review of relevant literature and the results of several interviews with publishers gives rise to implications and associated recommendations for consideration. These are listed as follows:

1. Communication

   1.1 Given rising costs for both educators and publishers, and recognizing the complexity of commercial learning materials production, materials of increased educative value are at issue.

   It is recommended that a joint study by publishers and educators be undertaken to investigate the interface and its implications for an improved product.

2. Alternatives to Texts

   2.1 There is agreement that the technology exists to produce acceptable alternatives to texts. The problems in providing the most up-to-date economical learning materials appear to be administrative ones between publishers and educators.

   It is recommended that a joint study by publishers and educators be undertaken to determine the most cost effective and manageable way of providing teachers and learners with the best up-to-date learning materials.

## ISSUES AT THE BOARD AND SCHOOL LEVEL RELATED TO LEARNING MATERIALS

Ministry of Education policy statements and available resources for learning materials affect school system decision-making. With declining enrolments school decision-making is increasingly influenced by changes in these resources and policies. The extent to which school systems manage their resources determines in part both the degree of teacher participation possible and the learning materials selected and used by teachers. Teachers make choices on learning materials judged necessary for effective instruction from commercial sources, school system resources and their own personal resources.

With learning materials as the focus, this section reports and discusses teacher and board perceptions on current practices, program changes anticipated and improvements desired. Alternative development models are described and recommendations related to these issues are presented.

### *PROCESS OF BOARD CURRICULUM GUIDELINE IMPLEMENTATION*

The lack of a comprehensive study of role, structures and processes for local decision-making in Ontario[112] makes it difficult to generalize with any certainty the degree of program specificity reaching the teacher. One characterization of this complexity describes this process in terms of "low", "medium" and "high" strategies[113] or Processes 1, 2 and 3 respectively. An adapted and expanded version appears in Figure 2.

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[112] R.W.B. Jackson, *The Missing Pupils in the Schools of Ontario Today and Tomorrow: A Statement of Conditions, Causes and Issues.* Interim Report. The Commission on Declining School Enrolments in Ontario, February 28, 1978, p. 202.

[113] T.B. Greenfield, et al, *Creating and Changing Curriculum in a School System: A Design for Development, Implementation and Evaluation.* A Report to the Wellington Country Board of Education. (Toronto: OISE, Dept. of Educational Administration, 1976), p. 124.

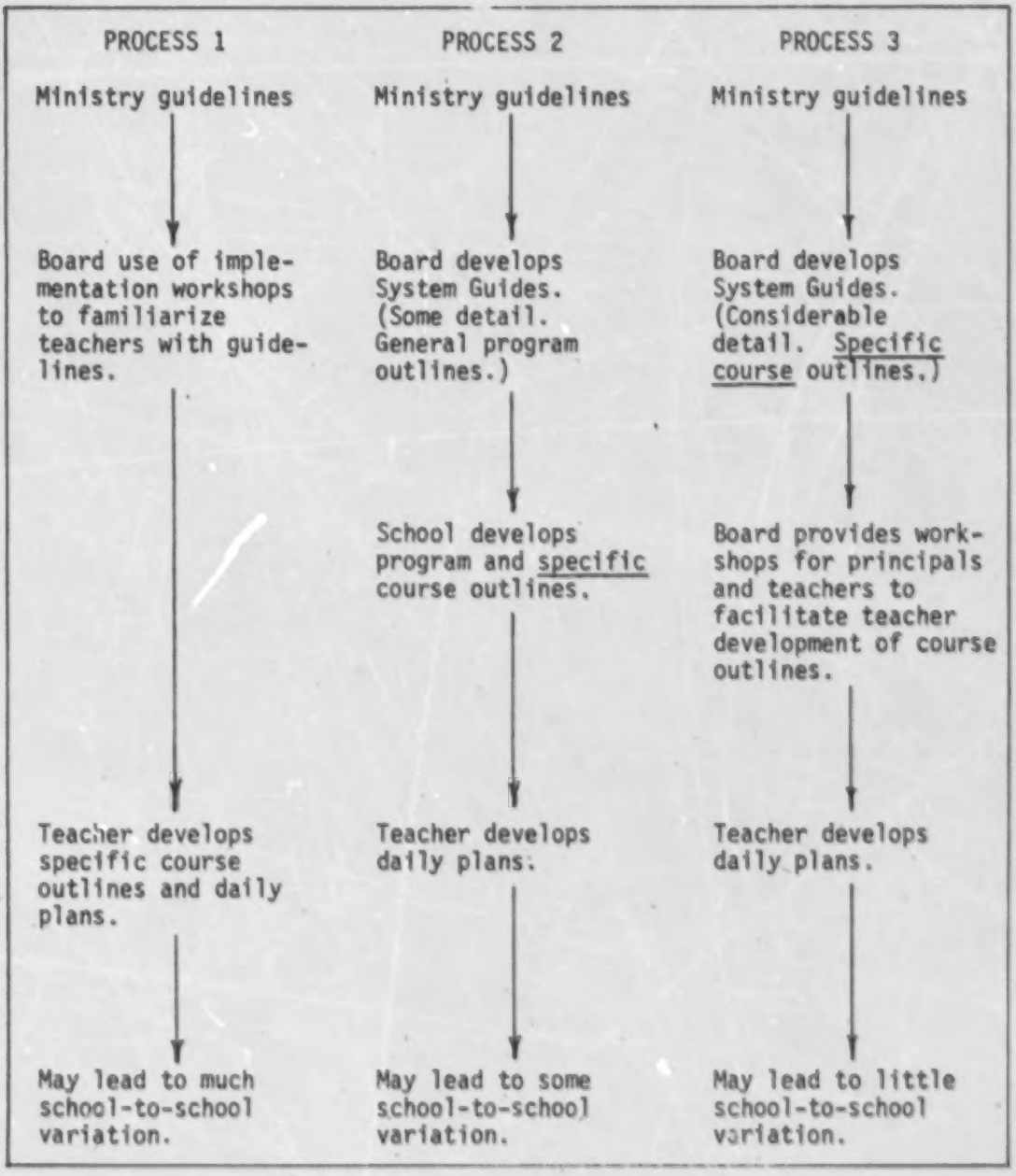
PROCESS 1
Ministry guidelines
Board use of implementation workshops to familiarize teachers with guidelines.
Teacher develops specific course outlines and daily plans.
May lead to much school-to-school variation.
PROCESS 2
Ministry guidelines
Board develops System Guides. (Some detail. General program outlines.)
School develops program and specific course outlines.
Teacher develops daily plans.
May lead to some school-to-school variation.
PROCESS 3
Ministry guidelines
Board develops System Guides. (Considerable detail. Specific course outlines.)
Board provides workshops for principals and teachers to facilitate teacher development of course outlines.
Teacher develops daily plans.
May lead to little school-to-school variation.

Figure 2. Program Specificity at the Teacher Level.

Adapted from T.B. Greenfield, et al, *Creating and Changing Curriculum in a School System: A Design for Development, Implementation and Evaluation*, A Report to the Wellington County Board of Education, (Toronto: OISE, Dept. of Educational Administration, 1976), p. 84.

Basically Process 1 represents minimal mediating influences as Ministry Guidelines are transmitted directly to teachers with some explanation. Process 2 appears as a more specific, yet general, set of guidelines generated mainly by board office staff. Process 3 represents the development of detailed school system-wide guidelines and the concern with extensive implementation in classrooms. The opportunities for diversity in programming possibilities decrease in the move from left to right. Teacher and board perceptions of the Process follow in Table 10.

TABLE 10

PROCESS OF BOARD CURRICULUM GUIDELINE IMPLEMENTATION

| Board N = 90<br>Teacher N = 537 | PROCESS 1 | | PROCESS 2 | | PROCESS 3 | |
|---|---|---|---|---|---|---|
| | BOARD | TEACHERS | BOARD | TEACHERS | BOARD | TEACHERS |
| The last three years | 28 | 36 | 49 | 43 | 23 | 21 |
| Route presently pursued | 18 | 24 | 42 | 50 | 40 | 26 |
| Route for next five years | 16 | 14 | 35 | 43 | 49 | 43 |
| Most desirable route | 16 | 15 | 33 | 42 | 51 | 43 |
| All figures expressed as percentages. | | | | | | |

While the greatest number of all respondents perceive Process 2 as the strategy used for the last three years, teachers, more so than board staff, also cite Process 1. Regarding the route presently followed for guideline implementation, boards are split between Process 2 and 3. While approximately half of the teachers indicate Process 2, the remaining half are equally divided between Process 1 and 3. Considerable discrepancy exists over the Process presently believed to be followed. While Process 1 is not favoured as a guideline implementation strategy for the next five years the remaining respondents are divided between 2 and 3 with teachers divided between 2 and 3, and most boards preferring 3. Concerning the most desirable Process, most respondents are divided between 2 and 3 with boards again favouring Process 3.

It should be noted that a small number of board respondents chose more than one Process. It may be that the offered characterization did not adequately represent the process.

Analysis of this data would seem to indicate lack of concensus between boards and teachers on the process of curriculum guideline implementation now, over the next five years and furthermore, the most desirable route.

Most respondents report a move away from Process 1 as the strategy for curriculum materials implementation. Although several reasons for this are possible, these findings suggest that boards are developing local system guides and thereby exercising more influence over teacher daily plans with subsequent decrease in school-to-school variation in curriculum. The finding that while the majority of respondents chose either Process 2 or 3 with boards preferring Process 3 may indicate a lack of clarity and agreement in some boards about role responsibility at different levels in the system, particularly those concerning program and course outlines' specificity.

Regardless of whether Process 2 or 3 is chosen local learning materials development will require resources. During declining enrolments, local resources for curriculum development and implementation may need to be reallocated.

*Board Comments on Local and Commercial Materials Development*

Over 67% of the board respondents made written comments on the importance of local versus commercial preparation of learning materials. Whereas 10% noted the value of local materials development as a professional development opportunity for teachers, the majority cite local materials development as the more desirable of the two sources for professional development. In no case are commercial materials used without modification and adaptation. Some concern is expressed that reduced resources will make boards more dependent on commercial materials as resource staff are cut back. Representative comments follow:

. Locally developed materials are more easily accepted but harder to develop. They are also fitted to the cirriculum rather than the reverse.

. Locally produced materials have "ownership" advantage; therefore, more important in light of effectiveness.

. Locally developed materials are best, provided personnel can be released from their duties to prepare them.

. "Commercially developed" ought to be important for ideas and content that is new or difficult to research. "Locally developed" ought to provide insight and applicability to specific needs.

. Both serve the purpose for which they are prepared--commercial material is more global in context but provides a professionally based resource. "Local" material is more immediate to the needs of the system--one of course, overlaps and supports the other.

. Locally produced materials have a personal impact--our system has had good results in music, art, primary mathematics, geography and local history. It is essential the material be developed within the Ministry philosophical guideline.

. I believe that Ministry curriculum and guidelines should be more detailed and specific. Local boards may then make modifications and applications to meet their needs. To have every school board prepare its own curriculum is wasteful and expensive in costs of preparing, and producing a multitude of documents. Many boards do not have the staff to prepare such curricula.

. Commercial materials are a valuable resource. Where possible locally developed materials enhance the implementation process especially for teachers involved in developing them. Much depends upon the availability of support staff to assist teachers in design and utilizing both commercial and local materials.

. Each source can provide valuable materials that cannot readily be produced by the other. There should be a balance of selection from each source to provide teachers with the maximum benefit which can be derived from any or all materials available.

. We prefer local materials because they are specially developed by us to implement the guidelines with our classes. (The cost of

this process will likely force us to rely increasingly on commercially developed materials.)

. As funds decrease, boards will be forced to rely more on commercially provided materials.

*Board Allocation of Resources for Development and Implementation*

Information on board allocation of resources for development and implementation over the next five years is presented in Table 11.

TABLE 11

BOARD ALLOCATION OF RESOURCES FOR CURRICULUM DEVELOPMENT AND IMPLEMENTATION OVER THE NEXT FIVE YEARS

| Board N = 90 | NOT AT ALL | SMALL EXTENT | MODERATE EXTENT | MAJOR EXTENT |
|---|---|---|---|---|
| Decreased resources for development | 20 | 34 | 34 | 12 |
| Decreased resources for implementation | 22 | 40 | 31 | 7 |

All figures expressed as percentages.

Approximately 70% of board respondents predict that over the next five years there will be a small or moderate decrease in resources for development and implementation with slightly less decrease in implementation resources.

Several board respondents noted the consequences of decreased resources with the following representative comment: "We prefer local learning materials because they are specially developed by us to implement the guidelines with our classes. ([However] The cost of this process will likely force us to rely increasingly on commercially developed materials)." Several boards welcome detailed and specific Ministry guidelines so that local efforts may be directed more to modifications and adaptations rather than every school board financing their own materials, since "Many boards do not have the staff to prepare such curricula."

*Selected Actions for Materials Development*

Teacher and board opinions regarding the value of selected courses of action for materials development are presented in Table 12.

TABLE 12

RESOURCES - VALUE OF SELECTED ACTIONS FOR MATERIALS DEVELOPMENT

| Board N = 90<br>Teacher N = 537 | OF NO VALUE | | LITTLE VALUE | | MODERATE VALUE | | MAJOR VALUE | |
|---|---|---|---|---|---|---|---|---|
| | Board | Teachers | Board | Teachers | Board | Teachers | Board | Teachers |
| Reduce amount of time and effort spent by boards on curriculum development | 23 | 23 | 28 | 42 | 22 | 24 | 27 | 11 |
| Reduction in board resources for curriculum development | 48 | 34 | 34 | 40 | 17 | 19 | 1 | 7 |
| Use of supply teacher funds to free teachers for local materials development | 14 | 14 | 21 | 31 | 44 | 34 | 21 | 21 |
| Use of government funds to free teachers for local materials development | - | 7 | - | 20 | - | 40 | - | 33 |

All figures expressed as percentages.

Approximately one-third of the teachers but about half (49%) of the board respondents perceive moderate or major value in reducing the amount of time and effort spent by boards on curriculum development. Both teachers and boards see little or no value in reducing board resources for curriculum development despite the fact that boards (68%, Table 11) predict there will be a small to moderate decrease in development resources. While the teachers are divided on the issue of using supply teacher funds to free teachers for local materials development, board staff see slightly more value in this strategy. Teachers (73%) do feel, however, that additional

government funds to free teachers for local materials development would be of significant value. Effective alternatives for local materials development may be well received as neither boards nor teachers see value in decreasing resources for local learning materials development, and boards, in particular, are seemingly predisposed to efficiency measures. The most significant course of action perceived by teachers within the context of declining enrolments is released time from classroom responsibilities to develop learning materials.

*Value of Potential Solutions*

Assuming reduced resources for learning materials development and implementation, the efficient and effective use of existing resources becomes more of an issue during times of declining enrolments. Board and teachers rate the value of potential solutions for improved resources in Table 13.

TABLE 13

VALUE OF POTENTIAL SOLUTIONS

| Board N = 90<br>Teacher N = 537 | NO VALUE | | LITTLE VALUE | | MODERATE VALUE | | MAJOR VALUE | |
|---|---|---|---|---|---|---|---|---|
| | Board | Teacher | Board | Teacher | Board | Teacher | Board | Teacher |
| Developing curriculum jointly with other school boards | 3 | 16 | 12 | 32 | 46 | 37 | 39 | 15 |
| Share curriculum materials among boards | 3 | 11 | 77 | 27 | 49 | 41 | 41 | 21 |
| Share curriculum personnel among boards | 3 | 12 | 9 | 30 | 44 | 40 | 44 | 18 |
| Increase curriculum responsibilities of principals | 10 | 14 | 15 | 30 | 41 | 40 | 34 | 16 |
| Department heads as curriculum leaders for Intermediate Division | 6 | 10 | 18 | 34 | 46 | 43 | 30 | 13 |
| Greater use of community resources | 13 | | 19 | 21 | 41 | 48 | 27 | 24 |
| Increase the number of classroom libraries | 22 | 20 | 36 | 35 | 27 | 32 | 15 | 13 |

All figures expressed as percentages.

Eighty-five to 90% of the board respondents report that developing curriculum jointly with other school boards or sharing curriculum materials or personnel among boards would be of moderate to major value as potential solutions to the problem of declining enrolments. Approximately 70% of teachers see developing curriculum jointly with other school boards and sharing curriculum personnel and materials as having little to moderate value. Seventy-five percent of the boards but only 56% of the teachers report moderate to major value in increasing the curriculum responsibilities of principals, or having department heads as curriculum leaders. The majority of both boards and teachers report little to moderate value in increasing the number of classroom libraries.

Seventy percent of both boards and teachers perceive moderate to major value in greater use of community resources as a potential solution to learning materials development during declining enrolments.

With the exception of increasing the number of classroom libraries, the large majority of board respondents indicate moderate to major value in the potential solutions offered. Teachers respondents, however, rate these potential solutions as being of less value to the problems of declining enrolments as only two suggested solutions enjoy significant support--the sharing of curriculum materials among boards and greater use of community resources.

This data suggests board and teacher respondents place different value on potential solutions, particularly with developing curriculum and sharing curriculum personnel and materials among boards. Approximately 30% more board respondents than teacher respondents indicate moderate to major value in these items as potential solutions.

This discrepancy addresses the problem of responsive decision-making where teacher and board personnel jointly discuss and plan for courses of action in order to gain full participation and cooperation.

Determination of sources of curriculum learning materials and their desired nature, introduces another dimension of decision-making which has implications for resource allocation and personnel.

*Board Changes - Reliance on Sources of Materials and Need for Specificity*

Table 14 provides board perceptions of changes in their reliance on sources of materials and the need for changes in the specificity of materials from these sources.

TABLE 14

BOARD CHANGES IN RELIANCE ON SOURCES OF LEARNING MATERIALS AND NEED FOR SPECIFICITY IN MATERIALS FROM THESE SOURCES

| Board N = 90 | MUCH DECREASE | | SOME DECREASE | | NO CHANGE | | SOME INCREASE | | MUCH INCREASE | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Reliance | Specificity | Reliance | Specificity | Reliance | Specificity | Relaince | Specificity | Reliance | Specificity |
| Ministry of Education Guidelines | - | - | 4 | 4 | 30 | 15 | 24 | 42 | 42 | 39 |
| Commercial Texts | 1 | - | 4 | 1 | 58 | 39 | 33 | 50 | 4 | 10 |
| University contributions | 4 | 2 | 5 | 3 | 73 | 38 | 16 | 40 | 22 | 17 |
| Joint Board contributions | - | - | 3 | 1 | 41 | 33 | 36 | 38 | 20 | 28 |
| Board Efforts | 5 | - | 5 | - | 32 | 31 | 31 | 38 | 20 | 28 |
| Family of Schools | 1 | - | 7 | 1 | 45 | 36 | 38 | 47 | 9 | 16 |
| Teachers | 3 | 1 | 1 | 1 | 30 | 33 | 40 | 36 | 26 | 29 |

All figures expressed as percentages.

Approximately 80% of board respondents state the need for increased specificity in Ministry guidelines and 66% cite an increased reliance on the guidelines as a source of learning materials. Over one-third will increasingly rely on commercial texts, however, 58% see no change on text reliance and 60% are looking for increased specificity in this resource. Most boards (73%) see no change in their reliance on curriculum materials generated by university sources and over half (57%) desire increased specificity in these materials. Approximately two-thirds to three-quarters of board respondents report either no change or some increase in reliance

on and need for specificity in both joint board and board contributions, 20% perceive much increase in the use of these potential resources. Over 90% indicate no change or some increase in reliance on curriculum materials within families of schools, however, 63% would like some to much increase in specificity. Approximately 70% of board staff see no change or some increase in reliance and specificity on teacher produced materials. Another 26% of board staff report much increase in reliance on teacher developed materials.

In short, the greatest board change in reliance on sources of curriculum materials and need for increased specificity is with Ministry guidelines. For the other sources of curriculum materials, the trend reported by boards is toward "Some increase" in reliance. And approximately one-quarter of board respondents report much increase in reliance on both board produced and teacher produced materials. Generally, boards are looking for more specificity in learning materials from all suggested sources. Lacking a definition of specificity for this table, information obtained in Tables 19 and 20 concerning teachers' and boards' perceptions of improvements desired in learning materials may provide insight into those characteristics of materials needing increased "specificity". Boards cite an increased reliance on materials from all suggested sources while at the same time predicting decreased resources for development and implementation. (See Table 11.) This apparent dichotomy may present constraints in the realization of board expectations for improved learning materials and local development.

The preceeding data reveals that boards anticipate a significant increased reliance on teachers as producers of learning materials, second only to Ministry guidelines. It appears that teachers will be increasingly expected to participate in local learning materials development and implementation. Teacher commitment and involvement to this course of action is dependent upon numerous factors and influences on teachers centering mainly on available skills, time, motivation and perceptions of need and role.

The following section reviews related research and reports Instrument data on teacher participation, involvement in decision-making,

influences on teachers' selection and usage of learning materials. A comparison of local, commercial and teacher prepared materials is also reported and discussed as are two models for learning materials development. Finally, implications and recommendations derived from the report data are presented.

## *TEACHER PARTICIPATION*

### *The Argument*

With significant Ministry commitment to meeting local educational needs by involving teachers and board personnel in local learning materials development, it has become increasingly important to explore the influence of teacher participation on learning materials development and related decision-making processes.

The teacher is the ultimate determiner of the degree to which materials are used in the classroom.[114] A persuasive argument can be made that any modification or change in teacher perceptions to effect program implementation and improve student learning must be generated through cooperative teacher participation.

There are many arguments supporting the merit of learning materials selection by individual teachers. Democratic action calls for all parties affected by decisions to participate in the making of them[115] particularly the right of an individual functioning in a profession.[116] The professionally trained person has knowledge of the particular social context, the culture, and strengths and weaknesses of individual learners. The individual teacher, equipped with the skills of teaching and learning[117]

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[114] E. House, *The Politics of Educational Innovation*, Berkeley, Calif.: McCutchan, 1975, p. 6.

[115] R.L. Brackenbury, "Guidelines to Help Schools Formulate and Validate Objectives." In *Rational Planning in Curriculum and Instruction*. For NEA, Center for the Study of Instruction. Washington, D.C.: National Education Association, 1967, p. 106.

[116] J.W. Ring, "Can the Teacher Initiate Curriculum Change?" *Ohio Schools* 45 (1967):1.

[117] L. Cronbach, *Text Materials in Modern Education*, p. 173.

is the final arbiter[118] of what learning experiences will be provided in the classroom.[119]

*Related Studies*

The importance of involving teachers in materials development, evaluation and selection is supported in the major conclusions of several studies. In 1969, an Ontario Teachers' Federation survey of membership opinion on recommendations in the Hall-Dennis Report found that 94% of a sample either "Strongly agreed" (58%) or "Agreed" (36%) that "teachers should be active agents in planning and developing improvements in education through the expression of professional competence and autonomy in the school and through active involvement in policy-making as members of school staffs and professional bodies."[120] To a question about whether teachers should have "a maximum of professional autonomy" in developing curricula "geared to the needs and interests of their subjects and community," the favourable response was 92%, with 57% of teachers feeling strongly on the subject.

Studies have shown that greater teacher participation will contribute to more effective program implementation. Teachers who participated in curriculum development activities, particularly the process of developing learning materials, actively employed those materials in their classrooms to a greater extent than those teachers who had not been involved in the development process.[121]

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[118] F.M. Connelly, "The Function of Curriculum Development," *Interchange* 3 (No. 2-3 1972):164.

[119] R. Dreeben, *The Nature of Teaching*, Glenview, Ill.: Scott, Foresman, 1970.

[120] J.M. Paton, "Movement Towards Teacher Autonomy in Canada," in *Concern and Competence in Canadian Education*, ed., D.A. MacIver, Toronto: Guidance Centre, Faculty of Education, University of Toronto, 1973, p. 148.

[121] C.P. Duet, "The Relationship of Teacher Participation on Curriculum Committees to Implementation of Curriculum Guides and Materials," Doctoral Dissertation, University of Georgia, 1972.

An Ontario study on the assessment of student achievement strongly endorsed the involvement of teachers--". . . teachers as implementors should help in the development of materials, in the evaluation of materials and in the continuing scrutiny of materials and procedures. Their opinions and active participation would be of benefit at every stage."[122]

Another study of teacher role and attitude in an on-going social studies curriculum project, Project Canada West, identified the following factors as encouraging teacher participation: The provision of released time, the provision of incentives, (not necessarily money), such as recognition, increased co-operation from administrators and school boards in support and better allocation of resources, and better preparation of teachers for curriculum work by universities.[123] The fact that teacher participation in local learning materials development may be lacking is suggested by a study of 5000 Ontario Secondary School teachers on teacher roles. Eighty-eight percent saw improving materials as important but only 11% indicated involvement with in-school materials development committees.[124] Therefore, insights into perceptions of Ontario teachers and boards as to the relative influences on choice of and information on new learning materials, have implications for those who would facilitate local learning materials development and selection.

*Influences on Board and Teacher Decision-Making*

Table 15 reports data on teachers' and boards' perceptions of influences on curriculum decision-making.

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[122] M.W. Wahlstrom and R.R. Danley, "Assessment of Student Achievement," Ministry of Education Funded Contract Research, 1976, p. 92.

[123] L. Richards, "Perceptions of Teacher Role in the Development of an Ongoing Social Studies Curriculum Project," Dissertation Abstracts International, Vol. 34, No. 9A, p. 5600.

[124] J.K. Olson and R. Kitto, "The Role of the Teacher in Curriculum Development," Queen's University, Ontario, 1977, p. 14.

TABLE 15

INFLUENCES ON CURRICULUM DECISION-MAKING

| Board N = 90<br>Teacher N = 537 | NOT AT ALL | | SMALL EXTENT | | MODERATE EXTENT | | MAJOR EXTENT | |
|---|---|---|---|---|---|---|---|---|
| | Board | Teacher | Board | Teacher | Board | Teacher | Board | Teacher |
| Teachers | 2 | 5 | 5 | 30 | 33 | 43 | 60 | 22 |
| Principals | 1 | 18 | 7 | 34 | 37 | 34 | 55 | 14 |
| Superintendents | 5 | 36 | 14 | 33 | 24 | 21 | 57 | 10 |
| Board Consultants | 22 | 33 | 7 | 34 | 26 | 24 | 45 | 9 |
| School Trustees | 22 | 75 | 57 | 19 | 18 | 4 | 3 | 2 |
| Parent Representatives | 31 | 66 | 61 | 29 | 8 | 5 | - | - |
| Ministry of Education Consultants | 7 | 55 | 41 | 30 | 39 | 12 | 13 | 3 |
| University Resource Persons | 53 | 71 | 40 | 22 | 6 | 6 | 1 | 1 |
| Publishers' Products | 28 | 28 | 52 | 41 | 15 | 25 | 5 | 6 |

All figures expressed as percentages.

Almost all teachers and board staff perceive school trustees, parent representatives and university resource staff as having minimal influence on curriculum decision-making. While most boards and teachers indicate publishers as having a small influence, slightly more teachers (31%) than board staff (20%) attribute a moderate to major influence to publishers. While approximately 85% of the teachers feel Ministry of Education Consultants have relatively little influence approximately 48% of board staff are in agreement. An even greater difference in board and teacher responses exists for board consultants and superintendents with slightly over two-thirds of the teachers attributing little influence to them. Board staff

see board consultants (71%) and superintendents (81%) as a moderate to major influence as compared with only one-third of the teachers. With regard to the principals' influence approximately 70% of teachers feel they have a small to moderate influence whereas approximately 90% of boards perceive them to have a moderate to major influence. Forty-three percent of the teacher respondents feel teachers have a moderate influence on curriculum decision-making with approximately one-third attributing a small to non-existent influence and another 22% a major influence. In comparison 60% of board respondents perceive teachers as having a major influence on curriculum decision-making with one-third assigning a moderate influence to them.

There is general agreement between teacher and board respondents as to who does and does not have influence on curriculum decision-making. Teachers attribute less influence than do board staff, except for publishers, to those perceived as influences. Similarily, for those who are generally felt to have an influence on curriculum decision-making, teachers perceive them to have less of an influence than do boards. For example, the finding that 45% of board respondents as compared with 9% of the teachers perceive board consultants to have a major influence on the curriculum is a surprising discrepancy in opinion.

The results of the data indicate that boards and teachers do in fact perceive teachers as having the most influence on curriculum decision-making despite the observation that boards attribute more influence to teachers than do the teachers themselves. This variance in perception concerning teachers' influence suggests that boards misjudge the teachers ability to affect curriculum decision-making. After teachers, principals are a strong influence followed by superintendents and board consultants. It appears that distance from the classroom is a reasonable predictor of the degree of influence on curriculum decision-making. The question then becomes, who influences the choice of classroom learning materials at the local level.

*Influence on Choice of Classroom Learning Materials - Local Level*

Instrument data in Table 16 provides some information on this aspect of decision-making.

TABLE 16

INFLUENCE ON CHOICE OF CLASSROOM LEARNING MATERIALS
- LOCAL LEVEL

| Board N = 90<br>Teacher N = 537 | NOT AT ALL | | SMALL EXTENT | | MODERATE EXTENT | | MAJOR EXTENT | |
|---|---|---|---|---|---|---|---|---|
| | Board | Teacher | Board | Teacher | Board | Teacher | Board | Teacher |
| Individual teachers | - | 4 | 5 | 19 | 41 | 48 | 54 | 29 |
| School Level (including departmental decisions) | 2 | 36 | 6 | 33 | 32 | 21 | 60 | 10 |
| Board Office Level | 19 | 33 | 38 | 34 | 31 | 24 | 12 | 9 |
| Trustees | 64 | 75 | 32 | 19 | 4 | 4 | - | 2 |

All figures expressed as percentages.

Almost all board personnel (95%) and teachers (77%) see the teacher as a major influence on the choice of classroom learning materials. Ninety-two percent of board staff, but only 31% of teachers, see the school (including departmental decisions) as a moderate to major influence. More board (43%) than teacher (33%) respondents report the board personnel as having a moderate to major influence on the choice of classroom learning materials. Approximately two-thirds of teacher respondents indicate board office staff as having no or only small influence on choice of classroom learning materials. Both teachers (94%) and board personnel (96%) report trustees as having minimal influence.

The discrepancy between board and teacher personnel on the influence on choice of classroom learning materials appears to indicate a lack of agreement on who is responsible for materials selection. Another explanation is that selection procedures may vary widely between some boards.

*Sources of Information on New Learning Materials*

Selection is influenced by the sources from which boards and teachers draw their information on new learning materials. Ministry of Education Circulars, educational book publishers promotional efforts, educational literature, professional development opportunities, board personnel and resource centres and teacher colleagues are potential sources. The varying sources of information on learning materials generally differ in the information content and emphasis conveyed and, therefore, some sources may be more informative for selection of quality learning materials. Table 17 addresses teacher and board data on sources of information on new learning materials.

TABLE 17

SOURCES OF INFORMATION ON NEW LEARNING MATERIALS

| Board N = 90<br>Teacher N = 537 | NOT AT ALL | | SMALL EXTENT | | MODERATE EXTENT | | MAJOR EXTENT | |
|---|---|---|---|---|---|---|---|---|
| | Board | Teacher | Board | Teacher | Board | Teacher | Board | Teacher |
| Circular 14 | 2 | 22 | 14 | 30 | 34 | 25 | 50 | 23 |
| Book Displays | 4 | 12 | 33 | 40 | 49 | 35 | 14 | 13 |
| Learning Resource Centre | 12 | 18 | 21 | 34 | 46 | 31 | 21 | 17 |
| Advertisements in professional magazines | 12 | 24 | 64 | 46 | 22 | 23 | 1 | 7 |
| Educational exhibits at education association meetings | 4 | 18 | 52 | 37 | 37 | 34 | 7 | 11 |
| Releases from commercial companies | 6 | 16 | 48 | 44 | 41 | 30 | 5 | 10 |
| Other teachers | 4 | 4 | 19 | 19 | 55 | 48 | 22 | 29 |
| Administrative or supervisory personnel | 9 | 21 | 27 | 35 | 47 | 31 | 17 | 13 |
| Salesmen | 16 | 47 | 50 | 40 | 31 | 11 | 3 | 2 |

All figures expressed as percentages.

Whereas approximately 50% of the teachers cite as moderate to major sources of information Circular 14, book displays and learning resource centres, board personnel respectively give the following support for the above sources of information: (84%), (63%), and (67%). Both boards and teachers (55%) cite educational exhibits at conferences as a lesser source of information. Both teachers (70%) and board personnel (76%) report advertisements in professional magazines as a lesser source. Releases from commercial companies are given by both to a lesser degree at approximately 57% and salesmen are said to have little impact with 66% of board personnel and 87% of teachers. It is noted that 47% of teachers feel salesmen have no influence. Where 64% of board personnel find administrative or supervisory personnel helpful, 56% of teachers do not. Teachers and board personnel (77%) find other teachers a good source of information on new learning materials.

A greater number of sources have a moderate to major influence on board personnel than on teachers; for example, board respondents indicate Circular 14, book displays, learning resource centres, other teachers and administrative personnel as significant. The only source of information which over 50% of teachers indicate as a moderate to major source of information is that of "Other teachers." Given that teachers are reported to have the responsibility of choosing classroom learning materials (Table 16) it is of significant concern that, with the exception of "Other teachers" providing information, no other sources offered in the Instrument are perceived by teachers as having a moderate to major influence on the selection of learning materials.

In the light of this data it is evident that the many potential sources of information are not realizing their intention of significantly facilitating teacher selection of learning materials. As a consequence the benefits of more informed decision-making through the alternative perspectives provided by these sources is lacking in the teachers' selection process.

The problem of relying largely on peers for information is compounded during declining enrolments where decreased teacher turn-over and mobility further diminishes opportunities for the exchange of new ideas. One immediate potential aid for teachers would require that board staff, who

indicate a variety of informational sources (Table 17), facilitate the appropriate management of resources.

Although much can be done to improve the quality of decisions related to learning materials, one of the significant issues in the field of learning materials which contributes to difficulties in practice is the lack of a tested theoretical base on what constitutes [illegible] learning materials.

*PROBLEMS WITH LACK OF TESTED THEORY*

The absence of tested theories about good learning materials tends to perpetuate five conditions.[125] First, it leads to learning materials selection based on political decisions rather than expertise; second, it leads to the selling of books rather than to informed selection; third, it leads to varied unsatisfactory methods of selection based on untested theory; fourth, it perpetuates the lack of improved pre-service and in-service training in the selection of learning materials and; fifth, it perpetuates responsiveness to passing trends of little educative value. It follows that educators and lay groups must have available reliable information which will assist them in the selection of quality learning materials.

Aside from the lack of a general tested theory of quality learning materials, the criteria that teachers apply in the selection and usage of these materials influence the development of both local and commercial materials. Recognizing that teachers have considerable influence on learning materials selection, any understanding of teacher choice and use of materials for the classroom must include both an awareness of influences acting on the teacher and the teachers' own criteria for selection.

*STUDIES ON TEACHER PREFERENCES*

The specifics of teacher preferences need to be given attention as teachers are the final arbiters of instruction and exercise autonomy in

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[125] L. Cronbach, *Text Materials in Modern Education*, University of Illinois, 1955, pp. 181-2.

classrooms.[126,127,128,129] For example, "teachers do not begin their planning by thinking about objectives . . . rather, teachers first focus on the type of learning activity that will be provided for the students."[130] If we assume that the choice of the learning activities prequently involves learning materials, the quality and nature of available materials influence the quality of planned learning activities. The reason behind teachers' use of certain learning materials and not others is therefore of great concern. Concerns have been reported by several investigators where, in general, agreement exists that the "curriculum must be relatively easy to implement, not conflict with value positions, produce observable results to the teacher, meet a felt need or needs, and be able to be used on a segmented and/or trial basis."[131] This supports the notion that teachers think primarily in terms of practical classroom considerations[132] since each of the above could be categorized under one of the three dimensions of instrumentality (the teacher's concern for procedures and content), cost (the teacher's concern for manageability and investment versus payoff), and congruence (the teacher's concern for teaching style and material fit). In a recent study[133] Maxson found practical classroom consideration insufficient

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[126] M. Maxson, "Teachers and Insnructional Materials: A Study of Teachers' Perceptions." Paper presented at American Educational Research Association. New York City, 1977.

[127] F.M. Connelly, "The Functions of Curriculum Development," *Interchange* 3 (No. 2-3 1972):161-177.

[128] W. Doyle and G.A. Ponder, "The Practicality Ethic in Teacher Decision-Making," *Interchange* 8 (No. 3 1977-78):1-12.

[129] R. Dreeben, "The School as a Workplace," in *Second Handbook of Research on Teaching*, ed. R.M.W. Travers (Chicago: Rand McNally, 1973).

[130] C. Clark and R.J. Yinger, "Research on Teacher Thinking," *Curriculum Inquiry* 7 (Winter 1977):279-304.

[131] M. Maxson, "Teachers and Instructional Materials: A Study of Teachers' Perceptions," 1977.

[132] W. Doyle and G.M. Ponder, "Teacher Language and the Practical: A Preliminary Analyais," 1975.

[133] M. Maxson, "Teachers and Instructional Materials: A Study of Teachers' Perception," 1977.

as an explanation and included packaging (materials exterior appeal and design/layout) and content fluency (how well the instructional unit provided a number of varied materials and multiple suggestions on how they might be used). There has been growing support for this perspective.[134,135] Furthermore, teachers' responses indicated that the "practical" construct did not reflect the teacher concerns as well as had been expected. Consequently, a more comprehensive "interactional" scheme was devised identifying teachers as "autonomous actors who must interact with others to produce the desired effect--namely, pupil learning."[136] Teacher responses indicated that, in selecting instructional materials for their classrooms, they considered not only their own individual interests, needs, and constraints, but also those of their pupils, as well as those of others coming from outside the classroom environment,[137] that is to say, administrators, parents and society at large.

The teachers perception of the learning material plays an important role in the adoption and its usage. For example, one concern of teachers is that the materials chosen suit the teacher's instructional style.[138] An improved understanding of teacher decision-making would facilitate the development and evaluation of learning materials appropriate to both teacher and learner needs. Within the financial constraints accompanying declining enrolments it is important that the learning materials developed are found to be appropriate and effective for learning. Consequently, information on teacher decision-making affecting learning materials is an important contribution for curriculum managers and learning materials developers.

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[134]F.M. Connelly, "The Functions of Curriculum Development," *Interchange* 3 (No. 2-3 1972):161-177.

[135]M. Ben-Peretz, "The Concept of Curriculum Potential," Informal Section, *Curriculum Theory Network* 4 (No. 2 1975):151-9.

[136]M. Maxson, "Teachers and Instructional Materials," p. 18.

[137]Ibid., p. 18.

[138]T.R. Mann, "The Practice of Planning: The Impact of the Elementary School on Teachers' Curriculum Decision Making," Doctoral Dissertation, University of California. 1975.

A documented Ontario study[139] of three boards provides some additional insights into teachers' curriculum decision-making processes on learning materials. The availability and adaptability of various learning materials and resources were found to be an important component of teachers' curriculum decision-making. Interviews with teachers explored teacher decision-making on learning materials for each of "Planning/Organizing," "Needs Assessment," "Development," "Implementation" and "Evaluation." Each of these is outlined below.

During "Planning and Development" objectives were predominantly chosen from guidelines and textbooks. However, guidelines did not appear to be sources of curriculum material. Selection criteria arose from teacher perception of the "nature of the client," the "availability" of the materials (frequently determined by others) and "relevance."[140]

Under the factor, "Needs Assessment" teacher selection of materials was influenced by student characteristics and personal preferences applying the criteria of "student skill development," "relevance" and "nature of the client."

Teachers desired a variety of materials (in addition to texts and audio/visual aids) when considering alternative curriculum materials during "Implementation." The teachers criteria of appropriateness for selection of these alternative materials were student skill development, relevance, and the possibility for student contribution.

With respect to "Evaluation," student reaction to the materials was the only major alternative considered (and chosen). Materials which improved student skill development and were relevant to student interest were considered to be of high quality.

Rank ordering of the influences on teachers' curriculum decisions revealed that curriculum materials were the strongest of the medium level

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[139] K. Leithwood, et al, "An Empirical Investigation of Teachers' Curriculum Decision-Making Processes and Strategies Used by Curriculum Managers to Influence Such Decision-Making," OISE, Spring 1978.

[140] Ibid., p. 29.

influences. Of 33 influences "systems guidelines" was ranked 6th; "the availability of resources (or money for certain resources)" was 7th; the kind of "information that can be picked up from lectures, books, magazines" was 9th; "published textbooks" was 12th and Ministry guidelines was 13th.[141]

> These curriculum materials provide a set of alternative objectives, instructional strategies, student materials and assessment tools from which teachers can select. Teacher choice is largely limited to the alternatives provided in these formats because of time pressures: it is extremely difficult for teachers to develop new alternatives to the ones provided. Materials are most influential if they are compatible with a teacher's philosophy of instruction and perception of student need, and if the alternatives offered are developed in sufficient detail as to be instituted in the classroom with only modest revision or elaboration.[142]

Two important concerns during declining enrolments are first, what materials are used and, secondly, how they are used. There is a lack of definitive reasearch on classroom materials usage despite the evidence that students spend most of their instructional time with learning materials and that learning materials have a significant influence on teachers' curriculum decisions. This report provides board and teacher perceptions of the usage and quality of materials. The information has implications for the improvement of both professional development and local and commercial materials production.

*RESEARCH ON LEARNING MATERIALS USE IN ONTARIO*

A 1974 Learning Materials Survey[143] of approximately 20,000 Ontario elementary and secondary educators investigating the nature, availability, and use of teaching aids in schools reported that:

1. all groups indicated there were enough texts, library reference books, and films; secondary school librarians had some reservations about adequate supply of reference books;

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[141] Ibid., p. 52.

[142] Ibid., p. 52.

[143] Systems Dimensions Ltd., System Research Group, "Learning Materials Survey," Ministry of Education Funded Contract Research, 1974.

2. both elementary and secondary school teachers wanted to use texts not on Circular 14;
3. all groups, but especially elementary and secondary school librarians and elementary school principals, reported having insufficient audiovisual aids;
4. both elementary and secondary school teachers stated they have had to make their own materials;
5. all groups, except elementary school principals, judged available materials as generally good;
6. all groups expressed various degrees of dissatisfaction with availability and quality of Canadian materials; and
7. all groups indicated cost as the most limiting factor in obtaining sufficient materials.

The Toronto Board of Education concluded from a recent study on the availability of Canadian books in schools that their students could gain only a "stunted, inadequate knowledge of Canada and Canadians" from current classroom and library materials.[144] While most teachers and students thought that library books and reference materials greatly facilitated learning, a study[145] of 10,000 Ontario teachers, students and parents reported that over one half of the teachers and over one third of the students felt their library had inadequate resources. Another study of elementary schools[146] revealed a high number of non-Canadian texts and teacher dissatisfaction with "Canadianized" versions of American authored texts. Elementary and secondary school libraries were searched for Circular 15 materials most likely to be found in school libraries. The average Canadian title was found in only one in three elementary schools and one in six secondary schools despite the fact that Circular 15 lists more than half of Canadiana materials. Furthermore, a study of 1,000 North York teachers showed that while texts used in classrooms were predominantly Canadian in origin, all other materials (films, filmstrips,

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[144]"Canadian Content Low in Toronto Schools," *Quill and Quire*, November 1976, p. 12.

[145]M. Adams, et al, "Educational Perspectives," Ministry of Education Research Contract, 1976, p. 65.

[146]"Canadian Content Low in Toronto Schools," p. 1-2.

periodicals, magazines) were predominantly non-Canadian in origin.[147] And despite the widespread use of commercial textbooks[148,149] the Downey Report,[150] revealing attitudes consistent with teachers in other provinces reported that most teachers strongly emphasized the need for appropriate textbooks and teacher guides. Although teachers desire improved learning materials and resources it has been noted that almost all materials are useful and, if used imaginatively by an effective teacher, can enhance the learning process. Strategies must be devised by which teachers can develop the capability to match the curriculum needs of their particular situation to the different potential outcome possible in a given set of learning materials.[151] In addition, it is argued that the availability and quality of varied learning materials and resources, facilitates the teacher's task of matching learner needs and learning materials. Consequently, the following four Tables (18, 19, 20 and 21) address teacher and board perceptions on the availability and quality of learning materials as influenced by declining enrolments.

*AVAILABILITY OF LEARNING MATERIALS*

Table 18 and 19 present teacher and board perceptions of trends in the availability of learning materials and resources over the last three and next five years as a reported consequence of declining enrolments.

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[147] P. Cassidy, "Canadian Content," *Education Canada* 15 (Fall, 1975): 21-23.

[148] "B.C. Teachers Grade Math Texts," *Quill and Quire*, February 1978, p. 15.

[149] M. Adams, et al, "Educational Perspectives," p. 68.

[150] "Social Studies Program Reassessed," *Quill and Quire* April, 1976, p. 9.

[151] M. Ben-Peretz, "The Concept of Curriculum Potential," pp. 151-9.

TABLE 18

CHANGES IN AVAILABILITY OF LEARNING MATERIALS AND RESOURCES

Board N = 90
Teacher N = 537

Scale: 1 - much decrease
2 - some decrease
3 - no change
4 - some increase
5 - much increase

| | LAST THREE YEARS | | | | | | | | | | NEXT FIVE YEARS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BOARD | | | | | TEACHER | | | | | BOARD | | | | | TEACHER | | | | |
| | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Innovative curriculum materials | - | 6 | 60 | 32 | 2 | 1 | 12 | 40 | 42 | 5 | 3 | 26 | 40 | 22 | 8 | 6 | 16 | 34 | 36 | 8 |
| Classroom reference books | - | 11 | 62 | 24 | 3 | 3 | 17 | 50 | 26 | 4 | 6 | 32 | 47 | 14 | 1 | 11 | 27 | 36 | 21 | 5 |
| Equipped resource centre | - | 8 | 62 | 25 | 5 | 2 | 11 | 58 | 23 | 6 | 4 | 32 | 49 | 13 | 2 | 8 | 21 | 50 | 16 | 5 |
| Resources for material development | 2 | 7 | 59 | 26 | 6 | 1 | 14 | 59 | 23 | 3 | 6 | 23 | 49 | 20 | 2 | 6 | 26 | 46 | 18 | 4 |
| Resources for implementing existing curriculum materials | 1 | 9 | 54 | 30 | 6 | 1 | 9 | 53 | 33 | 4 | 7 | 17 | 46 | 27 | 3 | 4 | 21 | 38 | 30 | 7 |
| Resources for revising existing curriculum materials | 1 | 7 | 55 | 32 | 5 | 1 | 8 | 45 | 38 | 8 | 9 | 21 | 41 | 27 | 2 | 4 | 18 | 33 | 34 | 11 |
| Individually prescribed student materials | - | 13 | 69 | 17 | 1 | 3 | 14 | 51 | 29 | 3 | 9 | 17 | 57 | 16 | 1 | 10 | 25 | 36 | 24 | 5 |
| Supplementary materials to Ministry Guidelines | - | 7 | 59 | 31 | 3 | 2 | 10 | 55 | 31 | 2 | 7 | 17 | 46 | 27 | 1 | 7 | 18 | 37 | 32 | 6 |
| Production of varied level materials | - | 10 | 61 | 25 | 4 | 3 | 13 | 53 | 28 | 3 | 7 | 23 | 45 | 23 | 2 | 8 | 24 | 37 | 26 | 5 |
| Teacher reliance on textbooks | 1 | 13 | 74 | 13 | - | 4 | 16 | 61 | 16 | 3 | - | 10 | 54 | 29 | 7 | 4 | 14 | 53 | 22 | 7 |
| Availability of equipment | 1 | 13 | 68 | 14 | 4 | 4 | 20 | 46 | 25 | 5 | 11 | 28 | 43 | 12 | 6 | 15 | 30 | 30 | 20 | 5 |

All figures expressed as percentages.

TABLE 19

COMPARISON OF MATERIALS AND RESOURCES
BY INCREASE IN AVAILABILITY

| LAST THREE YEARS | | | | NEXT FIVE YEARS (TRENDS TO INCREASE) | | | |
|---|---|---|---|---|---|---|---|
| BOARD | | TEACHER | | BOARD | | TEACHER | |
| Rev. | (37%) | Inn. | (47%) | ***Rel. | (36%) | *Rev. | (45%) |
| Imp. | (36%) | Rev. | (46%) | *Imp. | (30%) | *Inn. | (44%) |
| Inn. | (34%) | Imp. | (37%) | *Supp. | (28%) | **Supp. | (38%) |
| M.Dev. | (32%) | St.M. | (32%) | | | ***Imp. | (37%) |
| R.C. | (30%) | Prod. | (31%) | | | ***Rel. | (29%) |

Rev. - Resources for revising existing curriculum materials.
Imp. - Resources for implementing existing materials.
Inn. - Innovative curriculum materials.
Supp. - Supplementary materials to Ministry Guidelines.
M.Dev.- Resources for materials development.
R.C. - Equipped resource centre.
St.M. - Individually prescribed student materials.
Prod. - Production of varied level materials.
Rel. - Teacher reliance on textbooks.

Combined percentages for the categories "Some Increase" and "Much Increase" are given.

*Slight decrease in percentage as compared with last three years.
**Same percentage as that of last three years.
***Increase in percentage as compared with last three years.

Concerning the availability of learning materials and resources, the majority of both board and teacher respondents indicate either no change or an increase in availability over the last three years. For the next five years a greater percentage of respondents, particularly board respondents, predict a decrease in the availability of materials.

Highlighting similarities and differences between board and teacher perceptions on availability over the last three years, a significant percentage of board respondents (54%-lowest, 74%-highest) feel that the availability had not changed. With the exception of resources for materials development, a greater percentage of teachers report an increase in availability over the last three years. For example, approximately

twice the percentage of teacher respondents compared with board respondents report an increase in the availability of both individually prescribed student materials and equipment. However, the data generally reflect shared perceptions among teacher and board respondents on those materials and resources reported to have increased the most in availability over the last three years. The four items receiving the highest percentage of board and teacher responses (33% to 47%) for the categories "Some Increase" and "Much Increase" in availability are as follows: resources for revising existing curriculum materials; resources for implementing existing materials; innovative curriculum materials and supplementary materials to the Ministry Guidelines. Somewhat differing perceptions exist between teacher and board respondents for two of the remaining items. Twelve to 14% more teachers than board respondents report an increase in availability of equipment and individually prescribed student materials. In comparison with the last three years, more respondents indicate a change over the next five years, in the availability of learning materials and resources. With the exception of textbooks, the trend in the board data is towards a decrease in availability as compared with percentages for the last three years. Of those items, aside from textbooks, where more board staff predict an increase rather than a decrease (resources for implementing existing curriculum materials and supplementary materials to the Ministry guidelines) the percentages reported are lower than those for the last three years. However, 40 to 57% of board respondents predict there will be no change in availability. For those items showing a trend towards a decrease in the next five years, approximately 22% more boards predict a decrease in these resources as compared with percentages for the last three years. Even for those items showing an increase in the next five years (supplementary materials to Ministry guidelines and resources for implementing existing curriculum materials) the percentage of boards reporting this increase is less. Teacher reliance on textbooks is the only exception. This general trend suggests that the resources presently available in boards will need to be carefully managed to avoid further decreases in resource availability.

Aside from those teacher respondents indicating no change in availability over the next five years the greatest percentage of those remaining predict a decrease in six of the eleven items. Of those items with a trend

towards an increase only two (teacher reliance on textbooks and supplementary material to Ministry guidelines) show an increased percentage of responses as compared with the last three years.

In contrast to board projections, fewer teachers predict no change in availability over the next five years; however, as previously noted, teachers are generally more divided between the categories of increase and decrease. For example, agreement exists between teachers and boards on a trend toward an increase over the next five years in teacher reliance on textbooks, supplementary materials to Ministry guidelines. About the same percentage (30-37%)of both respondents as shown for the last three years report an increase in resources for implementing existing learning materials. Teachers also predict a continued increase in innovative curriculum materials and resources for revising existing curriculum materials whereas boards do not.

Several observations arise from the teacher and board data on the availability of learning materials and resources for the next five years, as compared with the last three years. First, some items are predicted to increase by both teachers and boards (see Table 20). Secondly, teachers predict an increase in two items that boards do not. Thirdly, the percentages for the corresponding items predicted to increase differ between boards and teachers by 7-10%. Fourthly, the rank ordering of the items by descending percentage of response differs between the two groups; for example, teacher reliance on textbooks is ranked first for boards but fifth by teachers.

The preceeding observations give rise to the following possible explanations and implications.

Differing perceptions of the constraints brought on by declining enrolments may have contributed to the somewhat different emphases placed on items. Differing rank ordering of the items between teacher and board respondents may reflect different priorities for allocation of learning materials resources. Teachers and boards may hold differing conceptions of the adequacy of existing learning materials as a significant percentage of teachers (44-45%) predict an increase in resources for both revised and

innovative learning materials while boards anticipate a general trend toward decrease in these items. The trend towards increased reliance on texts and materials supplementing the guidelines may be explained in part as a response to a more clearly defined core program for elementary and secondary schools. Furthermore, of those items predicted to increase, "teacher reliance on textbooks" being ranked first by board percentage response but last by teacher percentage response, implies somewhat varying conceptions of future learning materials use. If the data trends are predictive of of future practice and given that boards generally control the resources then some items anticipated to increase in availability by a significant number of teachers may not be forthcoming due to alternative board priorities in funding. However, the significance of this potential unbalance may be minimized as in fact teachers and boards are in considerable agreement on those items predicted to show a decrease over the next five years.

Cooperative efforts by both boards and teachers in adjusting to the anticipated changes in learning materials and resources brought on by declining enrolments will require shared understandings on teachers and learners needs for quality materials. Learning materials development and implementation with the attendant resource allocation should ideally be directed toward fulfilling these needs. The findings of this report suggest that a significant percentage of teachers anticipate the need for increased resources for revising and implementing existing materials, increased availability of innovative curriculum materials, materials supplementing the Ministry guidelines and textbooks.

Both the reported research on learning materials and teacher and board data previously described in Tables 18 and 19 suggest the need for improvement in learning materials within the context of the trend toward a decrease in availability. Given this potential dichotomy it becomes imperative that more information be available to learning materials developers on the adequacy and need for improvements to existing learning materials.

*COMPARISON OF LOCAL, COMMERCIAL AND TEACHER PREPARED MATERIALS*

Table 20 is a comparison of local, commercial and teacher prepared materials as a source of ideas, need for improvement and a resource for curriculum development. An overview of this Table follows Table 21.[152]

Table 21 serves to complement Table 20 by summing teacher and board data across the ratings "Moderate Extent" and "Major Extent" for each of the ten categories. Table 21 lists these categories in descending order for local and commercial materials within the three foci--resources, ideas and need to improve. The discussion following Table 21 centers on commercial and local materials. Teacher developed learning materials are also described with reference to data from Table 20.

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[152]A detailed description of Table 20 is included in Appendix K.

TABLE 20

Board N = 90
Teacher N = 537

A COMPARISON OF LOCAL, COMMERCIAL AND TEACHER PREPARED MATERIALS AS:
A SOURCE OF IDEAS; NEED FOR IMPROVEMENT; AND A RESOURCE FOR CURRICULUM DEVELOPMENT

| L=Local C=Commercial P=Personal (teacher) S=Same | NOT AT ALL/ LEAST IMPORTANT | | | | | | | | SMALL EXTENT/ SLIGHTLY IMPORTANT | | | | | | | | MODERATE EXTENT/ SOMEWHAT IMPORTANT | | | | | | | | MAJOR EXTENT/ MOST IMPORTANT | | | | | | | | BEST SOURCE OF IDEAS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RESOURCE | | | | IMPROVEMENT | | | | RESOURCE | | | | IMPROVEMENT | | | | RESOURCE | | | | IMPROVEMENT | | | | RESOURCE | | | | IMPROVEMENT | | | | | | | |
| | TEACHER | | | BOARD | | | TEACHER | | BOARD | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | L | C | P | L | C | | L | C | L | C | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Objectives | 14* | 30 | 3 | 2 | 11 | | 8 | 26 | 3 | 17 | 26 | 44 | 14 | 8 | 44 | | 24 | 34 | 10 | 30 | 41 | 21 | 44 | 45 | 45 | | 38 | 28 | 28 | 33 | 19 | 5 | 39 | 45 | - | | 30 | 12 | 59 | 20 | 66 | 12 | 22 | 63 | 14 | 23 |
| Content | 11 | 10 | 1 | 2 | 4 | | 4 | 8 | 1 | 1 | 33 | 40 | 10 | 5 | 25 | | 20 | 26 | 7 | 23 | 41 | 41 | 37 | 49 | 60 | | 40 | 44 | 45 | 46 | 15 | 9 | 52 | 44 | 11 | | 36 | 22 | 47 | 30 | 50 | 25 | 25 | 36 | 22 | 42 |
| Activities | 11 | 7 | 5 | 2 | 5 | | 4 | 6 | 1 | 4 | 33 | 36 | 11 | 12 | 18 | | 21 | 21 | 10 | 17 | 45 | 47 | 37 | 45 | 64 | | 41 | 48 | 37 | 54 | 11 | 10 | 47 | 41 | 13 | | 34 | 25 | 52 | 25 | 37 | 34 | 29 | 45 | 19 | 36 |
| Extra Materials | 12 | 7 | 3 | 2 | 5 | | 3 | 7 | 4 | 1 | 38 | 37 | 17 | 29 | 17 | | 22 | 25 | 17 | 23 | 38 | 40 | 43 | 38 | 60 | | 39 | 40 | 42 | 49 | 12 | 16 | 37 | 31 | 18 | | 36 | 28 | 37 | 27 | 25 | 48 | 27 | 18 | 40 | 42 |
| Diagnosis | 24 | 31 | 5 | 7 | 14 | | 6 | 13 | 3 | 6 | 42 | 42 | 20 | 32 | 42 | | 26 | 31 | 11 | 20 | 27 | 24 | 43 | 42 | 42 | | 36 | 33 | 32 | 47 | 17 | 3 | 32 | 19 | 2 | | 32 | 23 | 54 | 27 | 44 | 24 | 32 | 44 | 21 | 35 |
| Evaluation | 21 | 30 | 3 | 4 | 14 | | 7 | 12 | 5 | 7 | 40 | 46 | 14 | 25 | 49 | | 24 | 31 | 8 | 23 | 31 | 21 | 40 | 39 | 35 | | 36 | 34 | 14 | 28 | 8 | 3 | 43 | 32 | 2 | | 33 | 23 | 73 | 42 | 52 | 19 | 29 | 49 | 15 | 35 |
| Instructional Strategies | 17 | 16 | 2 | 2 | 6 | | 6 | 9 | 3 | 8 | 36 | 48 | 11 | 12 | 36 | | 25 | 30 | 12 | 21 | 38 | 31 | 43 | 49 | 53 | | 41 | 40 | 34 | 47 | 9 | 5 | 44 | 37 | 5 | | 28 | 21 | 51 | 24 | 42 | 22 | 35 | 40 | 11 | 49 |
| Organization | 15 | 14 | 1 | 5 | 12 | | 8 | 15 | 6 | 15 | 38 | 46 | 7 | 13 | 45 | | 30 | 38 | 17 | 30 | 37 | 34 | 36 | 53 | 42 | | 35 | 34 | 38 | 37 | 10 | 6 | 56 | 29 | 1 | | 27 | 13 | 39 | 10 | 50 | 18 | 32 | 58 | 6 | 36 |
| Clarifying Goals/Purposes | - | - | - | 4 | 16 | | 7 | 22 | 4 | 14 | - | - | - | 10 | 45 | | 24 | 32 | 12 | 33 | - | - | - | 42 | 37 | | 33 | 25 | 23 | 30 | - | - | - | 44 | 2 | | 36 | 21 | 60 | 23 | 65 | 12 | 23 | 61 | 5 | 34 |
| Prof. Dev. during Implementation | 13 | 21 | 15 | 5 | 21 | | 7 | 16 | 7 | 11 | 45 | 32 | 34 | 36 | 28 | | 33 | 32 | 25 | 32 | 45 | 32 | 35 | 36 | 28 | | 33 | 32 | 28 | 32 | 15 | 6 | 17 | 41 | 8 | | 35 | 16 | 60 | 29 | 59 | 11 | 30 | 63 | 6 | 31 |

All figures expressed as percentages.

*Example: Fourteen percent of teacher respondents indicate local materials do not serve as a resource for objectives.

TABLE 21

RANKING OF CATEGORIES WITHIN FOCI

| LOCAL MATERIALS DEVELOPMENT | | | | | | COMMERCIAL MATERIALS DEVELOPMENT | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RESOURCE | | IDEAS | | NEED TO IMPROVE | | RESOURCE | | IDEAS | | NEED TO IMPROVE | |
| TEACHER | BOARD | TEACHER | BOARD | TEACHER | BOARD | TEACHER | BOARD | TEACHER | BOARD | TEACHER | BOARD |
| Obj. 60 | Cont.93 | Obj. 66 | Obj. 63 | Cont.76 | Cont.92 | Act. 57 | E.M. 78 | E.M. 48 | E.M. 40 | Act. 73 | Act. 79 |
| P.D. 60 | Obj. 90 | C.G. 65 | P.D. 63 | Act. 75 | Act. 89 | E.M. 56 | Act. 77 | Act. 34 | Cont.22 | E.M. 68 | E.M. 76 |
| Act. 60 | Act. 86 | P.D. 59 | C.G. 61 | E.M. 75 | Eval.87 | Cont.50 | Cont.71 | Cont.25 | Diag.21 | Cont.66 | Cont.76 |
| Cont.60 | I.S. 86 | Eval.52 | Org. 58 | I.S. 69 | Obj. 87 | Org. 40 | I.S. 58 | Diag.24 | Act. 19 | I.S. 61 | Diag.74 |
| E.M. 50 | C.G. 86 | Cont.50 | Eval.49 | Eval.69 | Diag.86 | P.D. 38 | Obj. 45 | I.S. 22 | Eval.16 | Eval.57 | I.S. 71 |
| I.S. 47 | Org. 82 | Org. 50 | Act. 45 | C.G. 69 | I.S. 85 | I.S. 36 | Diag.44 | Eval.19 | Obj. 14 | Diag.56 | Eval.70 |
| Org. 47 | P.D. 77 | Diag.44 | Diag.44 | Obj. 68 | P.D. 85 | Diag.27 | Org. 43 | Org. 18 | I.S. 11 | P.D. 48 | Obj. 53 |
| Diag.44 | Eval.71 | I.S. 42 | I.S. 40 | P.D. 68 | C.G. 83 | Obj. 26 | C.G. 39 | C.G. 12 | Org. 6 | Org. 47 | C.G. 53 |
| Eval.39 | E.M. 69 | Act. 37 | Cont.36 | Diag.68 | E.M. 79 | Eval.24 | Eval.37 | Obj. 12 | C.G. 6 | C.G. 46 | P.D. 52 |
| | Diag.61 | E.M. 25 | E.M. 18 | Org. 62 | Org. 77 | | P.D. 36 | P.D. 11 | P.D. 5 | Obj. 40 | Org. 47 |

Obj. = Objectives
Cont. = Content
Act. = Activities
E.M. = Extra Materials
Diag. = Diagnosis
Eval. = Evaluation
I.S. = Instructional Strategies
Org. = Organization
C.G. = Clarifying Goals/Purposes
P.D. = Professional Development during Implementation

All figures expressed as percentages.

*Commercial Materials*

There is considerable congruence between teacher and board respondents as to the categories valued in commercial materials as a resource and source of ideas. "Activities," "Extra Materials" and "Content" were featured most frequently as a resource for both groups, with boards placing a much higher emphasis on these categories. As a source of ideas both board and teacher respondents (less than 50%) rated all categories low. The only category of greatest significance for both teachers and boards was "Extra Materials."

Concerning the question of need for improvement in commercial materials, both teacher and board respondents rate most categories as requiring moderate to major improvement.

Using a response cut off of 60% for categories, teachers and boards equally call for improvements in "Activities," "Instructional Strategies," "Extra Materials," and "Content."

*Local Materials*

Boards generally perceive local materials more favourably as a resource than do teachers. For example, the percentage of board respondents is 60% and higher on all categories whereas teachers value these same categories at 60% and less. With the exception of the category "Objectives," lack of agreement is evidenced in the categories rated most highly as moderate to major components in local resources. Sixty percent of teachers view locally developed materials equally as a resource for "Objectives," "Professional Development," " Activities," and "Content." With the exception of "Diagnosis" over two-thirds of all board respondents perceive local materials as a significant resource for all remaining categories. Boards rate local materials as a resource primarily for "Content" and "Objectives."

There is considerable similarity between the percentage of boards and teachers in the categories valued most highly as a source of ideas in local materials. Those are identified as "Objectives," "Clarification of Goals," and "Professional Development." Generally, a smaller percentage of board personnel rate local materials as a source of ideas than as a resource.

Teachers and board staff are in agreement that local materials need moderate to major improvement in all categories and, primarily, in the categories "Content," and "Activities." A higher percentage of board staff than teachers perceive local materials as needing moderate to major improvements in all categories.

*Teacher Developed Learning Materials*

With the exception of "Professional Development," teachers rate personally developed materials higher as a moderate to major resource on

all categories than locally or commercially developed learning materials. Categories are ranked in descending order of percentage response as follows: "Organization" (92%), "Content" (89%), "Instructional Strategies" (87%), "Activities" (84%), "Evaluation" (83%), "Objectives" (83%), "Extra Materials" (80%), "Diagnosis" (75%), and "Professional Development" (52%).

SUMMARY

With frequencies consistently high on all categories (except "Professional Development") for personally developed materials as a moderate to major resource, it appears that teachers may compensate for perceived inadequacies in commercial and local materials by producing their own. Personally developed materials were rated by over 85% of the teachers as a moderate to major resource for the following dimensions: "Organization" (92%), "Content" (89%) and "Instructional Strategies" (87%).

A higher percentage of board respondents generally report local and commercial materials more favourably across all categories than do teachers. Boards particularly rate local materials more highly than commercial materials. This discrepancy strongly suggests that teachers and boards hold varied perceptions on the usefulness of the learning materials. The implication being that producers of learning materials may lack a shared understanding of how effectively available learning materials meet teacher and student learning needs. Boards in particular may overestimate the adequacy and quality of the resources available to teachers.

Generally teachers hold both local and commercial learning materials in moderate regard as a resource. With the exception of the category "Extra Materials," a higher percentage of teachers perceive local materials, in comparison to commercial materials, as a moderate to major resource.

Boards and teachers are in considerable agreement on the categories for which local and commercial materials are primarily a source of ideas. Except for "Extra Materials," less than 40% of both boards and teachers perceive commercial materials as a moderate to major source of ideas in all categories. Locally developed learning materials are perceived more favourably as a source of ideas by both board and teacher respondents. Teacher and board respondents are primarily in agreement that local and

commercial materials need improvement. Board staff are particularly emphatic about this.

The observation that boards are emphatic about the need for improvement in local and commercial materials appears to conflict with the finding in Table 19 that boards anticipate a trend towards an increase in resources for implementing existing curriculum materials. Furthermore, a significant percentage of teachers anticipate an increase in the availability of resources for revision of existing curriculum materials while the trend in the board data is towards a decrease for this item, as compared with the last three years. The findings from Table 20 that teachers generally hold local and commercial materials in only moderate regard as a resource, a source of ideas and in need of improvement, complement the observation from Table 19 that a significant percentage of teachers anticipate revision of existing materials.

Some teachers have had an opportunity to acquire new knowledge and skills on learning materials from a wide variety of resource personnel. The Canada Studies Foundation has provided a forum where those with diverse talents have been brought together to improve the quality of learning materials made available to learners.

## AN EXAMPLE OF CANADIAN LEARNING MATERIALS DEVELOPMENT

### *CANADIAN STUDIES FOUNDATION*

The origin of the Canada Studies Foundation (CSF) can be traced to the publication of *What Culture? What Heritage?* by A.B. Hodgetts.[153] The lack of observed discussion and analysis of Canadian issues in classrooms redefined the role of the teacher as central to curriculum development.[154,155] Consequently, the Foundation itself encourages and funds teacher based developments of a pan-Canadian nature throughout the ten Provinces. Subscribing to the notion that teacher effectiveness will only improve with participation in curriculum development and meeting the central problem in the development of Canada Studies as the lack of teaching materials, the Foundation has invested over five million dollars[156] in curriculum development since its inception.

In May 1975 the Foundation entered a second phase with financial support provided by the Provinces (each of the ten provinces contributing on a population basis through the Council of Ministers of Education) matched equally by the federal Government through the Department of the Secretary of State. The Foundation is governed through an autonomous board of Ministers' representatives and private citizens.

### *Impact*

Canada Studies Foundation has gone a long way in creating an innovative climate for influencing professional practice.[157] As of June 1978,

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[153] A.B. Hodgetts, *What Culture? What Heritage?* Toronto: Ontario Institute for Studies in Education, 1968.

[154] K.W. Anderson, "The Role of the Teacher in Curriculum Development," Paper presented to the Canadian Association for the Social Studies, 1974.

[155] J.B. Roald, "Local Studies: An Experimental Springboard in Curriculum Development," in *The Canadian Studies Curriculum: A Report from the Canada Studies Foundation*, R.P. Bowles, ed. Symposium presented at the meeting of the Canadian Association for Curriculum Studies, Toronto, 1974.

[156] B.O. Smith, W.D. Stanley and R.H. Shores, *Fundamentals of Curriculum Development*, New York: Harcourt, Brace and World, 1975.

[157] H. Dhand, and M. Murphy, "The Case for Teachers' Centres, *Education Canada* 17 (Fall 1977):18-21.

some 5,000 teachers across Canada (not including other educators from universities, departments of education, teachers' federations, etc.) have been exposed to many and varied ideas and processes in Canadian Studies.[158] Classroom teachers have been involved in the planning and development of nearly all projects, utilizing the consulting services of university professors, curriculum specialists, administrators and community personnel. The cooperative process of "horizontal" interaction (among various levels of education) has been regarded as of at least equal importance to any "concrete" products that might emerge from the Foundation's work.

The Foundation has gained success in part by the availability of trained university faculty used as consultants to the teachers. The focus has been an interplay of individual teacher development with team processes under discussion. Thereby, materials developed by individual teachers are given a degree of commonality with other materials through the group process, and final sanction is provided by the Ministries of Education.[159]

The Canadian Teachers' Federation suggested that the acceptance of some responsibility for the curriculum is an important measure of a teacher's professional growth[160] and that involvement discourages adherence to traditional methods.[161] Anderson found in Project Atlantic Canada that the majority of the teachers involved expressed a desire to become involved in curriculum development. Over 75% of the respondents in a CSF study felt more competent and confident in curriculum development work and saw a positive effect for their involvement.[162]

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[158] R. Anderson, Director, Canada Studies Foundation, OISE, Personal interview.

[159] F.M. Connelly, "Curriculum Decision-Making by Teachers," Paper presented at the Western Regional Conference, 1977.

[160] Canadian Teachers' Association. *Teacher Influence on Curriculum: Research Study Number 4*, Ottawa: Research Division, Canadian Teachers' Federation, 1959.

[161] R.S. Harnack, *The Teacher: Decision Maker and Curriculum Planner*, Scranton: International Textbook Company 1968.

[162] R.W. Anderson, "The Role of the Teacher in Curriculum Development. Paper presented to the Canadian Association for the Social Studies, 1977, p. 12.

The interest and support of academicians has helped contribute to the Foundation's success. G.S. Tompkins' detailed analysis of the Ford Foundation Project has provided a blueprint for Canada Studies Foundation activities and subsequent strengths.[163] As an example, Tompkins reports a major shortcoming of the Ford Foundation Project worth remembering. "The Foundation staff . . . underestimated the difficulties in producing new curriculum units." These were found to require "extensive testing, evaluation and revision . . . materials were put into use too quickly to allow for adequate testing and revision; and most materials generally are not used by anyone other than the teachers who created them . . . ."[164] In all the projects, the teacher was seen as the key to school improvement. The teacher's skill and attitude were identified as the central factors in moving a school beyond the status quo.[165]

Nine basic generalizations concerning behavioural changes in teacher curriculum-developers were found[166] to exist in Project Canada West teachers.[167] Teachers involved in local curriculum development under the auspices of Project Canada West:

1. act as change agents in relation to their fellow teachers;
2. change in their relationship with other educators and the lay public;
3. participate in an extensive program of professional activities;
4. are capable of implementing curriculum change in subject areas other than Canadian urban studies;

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[163] G. Tompkins, *The Foundation Goes to School: Report of the Ford Foundation Comprehensive School Improvement Programs*, New York: 1960-70.

[164] Ibid., p. 21.

[165] Ibid., p. 24.

[166] M. Burke, "Professional Growth of Teachers' Participation in Project Canada West," Unpublished Master's Thesis, University of Saskatchewan, 1973.

[167] R.W. Anderson, "The Role of the Teacher in Curriculum Development," Paper presented to the Canadian Association for the Social Studies, 1977, pp. 11-12.

5. have a new professional attitude;
6. have greater involvement in the decision-making process;
7. are research-oriented;
8. employ a greater variety of teaching strategies and techniques in the classroom;
9. have a more realistic view of curriculum development.[168]

The adoptive implementation strategies defined by this effectively implemented project comprise three recommended common and critical components of any successful intervention--local materials development; concrete, on-going training; on-line or adoptive planning and regular, frequent staff meetings.[169]

*Problems*

Since CSF is inter-provincial and trying to foster a national perspective it is having some difficulties interfacing with Provincial goal statements that are too general. Also, without the backing of an institution, CSF is finding the process of Circular 14 approval too expensive. Thousands of dollars are spent to develop nine copies of a commercial text product before the Ministry of Education will even consider the material for review. Both the time lag involved in this process and the reviewers' suggested grade level designations for the materials are sometimes disappointing to those large numbers of inter-institutional people who developed the materials to meet identified needs with specific learners. Concern also exists that implementation is not sufficiently considered when CSF materials are evaluated for Circular 14. In-service training is needed to assist teachers with good ideas to develop quality manuscripts readily acceptable to learners, teachers, publishers and Ministry of Education selection committees.

Canada Studies Foundation is winding down during 1978-79 due to a lack of continuing funds. The Ontario government has made available a

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[168] M. Burke, "Professional Growth of Teachers' Participation," pp.58-59.

[169] M. McLaughlin, "Implementation as Mutual Adaptation: Change in Classroom Organization," *Teachers' College Record* 77 (No. 3 1976):348.

$31,000 grant which, with funds still available from 1977-78, makes another year possible.[170]

The congenial atmosphere for innovation and unprecedented interest in curriculum development created by the efforts of the Canada Studies Foundation and its affiliated projects should be continued--at least through one agency--a network of Teachers' Centres. Centres are not common in Canada. A brief description of British Teacher Centres is offered as a suggested alternative for the continued professional growth of teachers.

*TEACHERS' CENTRES*

Teachers' centres in Britain are rapidly becoming a locus of innovative ideas. They serve many significant functions such as:

> linking pre-service educational training and in-service education, integrating curriculum development and staff development, bringing different educational groups (teachers, administrators, university faculty and the community) together, providing consultative services, acting as a clearing-house of information, and lending equipment and resource materials. They assist in reprographic and educational technology, offer a convenient and neutral venue for meetings, exhibitions and displays, and, above all, they create an atomosphere in which teachers explore curriculum materials and help one another think out approaches to teaching."[171]

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[170] R. Anderson, Director, Canadian Studies Foundation, personal interview.

[171] H. Dhand and M. Murphy, "A Case for Teachers' Centres," pp. 18-21. Teacher Centres are the subject of another CODE report.

## IMPLICATIONS AND RECOMMENDATIONS

1. Support and Direction

1.1 Improved collaboration between the Ministry of Education, university personnel and Teachers' Federations would facilitate on-going consultative support to school boards and teachers.

It is recommended that the Ministry of Education, university personnel and Teachers' Federations provide consultative support to school boards and teachers in:

a) the training of personnel in the field of resource material selection,
b) local learning materials evaluation,
c) the co-ordination and dissemination to other school boards of the results of such evaluations, together with evaluations of provincially approved resources,
d) the distribution of resources within schools and boards,
e) the intended use of provincially approved materials, and
f) the training of relevant personnel in proposal writing for application to the Learning Materials Development Plan.

(Adapted from British Columbia Assessment Survey, 1977.)

1.2 Existing rules and regulations governing selection reveal an almost complete absence of guiding principles about what constitutes quality learning materials.

It is recommended that the following seven considerations be the nucleus of guidelines for learning materials selection:

a) local policies and procedures governing evaluation and selection of materials;
b) in-service training for selection by curriculum specialists;
c) sufficient released time for teachers for the selection process;
d) assessment of priority needs of schools and school boards;

e) determination of decision-making responsibilities;
f) reciprocal professional relationships between publishers and educators; and
g) pilot studies to reveal strengths and weaknesses of considered learning materials.

(Adapted from Knapper, T.B., "Guidelines for Administering Effective Text and Materials Selection," *Educational Technology*, July 1977, pp. 32-34.)

2. Selection

2.1 The teachers' main source of information for the selection of new learning materials was found to be other teachers. Teachers are not always clear on *why* they select certain materials and have difficulty identifying and describing criteria for selection of materials for their students. If teachers are to be effective sources of feedback regarding materials, there must be a common language between teachers, developers and evaluators.

It is recommended that teachers receive pre-service and in-service training in the evaluation of learning materials both to improve development and selection practices and to facilitate communication.

3. Resources Staff

3.1 Information on learning materials offered to teachers by resource staff to facilitate more effective instruction must be relevant to the teachers' perceptions, background experiences and particular classroom contexts.

It is recommended that board resource staff, in consultation with teachers, select, develop and maintain kits of quality learning materials readily available to teachers.

It is recommended that resource staff convene specialized workshops for the purpose of facilitating information

exchange between participants on issues surrounding learning materials selection and use.

It is recommended that school boards provide the resources necessary for librarians desiring additional knowledge and skills in learning materials identification, selection, evaluation and use so that they may more effectively serve as a resource for both teachers and students.

It is recommended that a study be conducted to investigate the desirability and feasibility of establishing Teachers' Centers.

4. Involvement

4.1 A significant percentage of teachers anticipate the need for increased resources for revising and implementing existing materials, increased availability of innovative curriculum materials, materials supplementing the Ministry Guidelines and textbooks.

It is recommended that learning materials development and implementation, with the necessary resource allocation, be directed towards fulfilling teachers' and learners' needs for quality learning materials.

4.2 Cooperative efforts by both boards and teachers in adjusting to the anticipated changes in learning materials and resources brought on by declining enrolments will require shared understandings on teachers' and learners' needs for quality learning materials. Teachers and boards differ as to the ideal process for local materials development and implementation and appear to hold varied perceptions on the usefulness of available local and commercial learning materials.

It is recommended that the Ministry of Education sponsor studies at the board level to inquire into, report upon and make recommendations in respect of the local materials development process.

It is recommended that the Ministry of Education sponsor studies at the board level to inquire into, report upon and make recommendations for subsequent improvements in respect of the adequacy and quality of learning materials and resources available to teachers and learners.

5. Materials Design

5.1 Since students differ in background, learning style and ability, it is important that learning materials be readily adaptable to specific groups of students and also allow for multiple use of the same materials.

It is recommended that materials should be designed to allow for flexible and multiple uses of the materials depending on the teacher's objectives, the characteristics of the students and the setting.

(Adapted from Tyler, L.L., Klein, M.F., and Michael, W.B., Recommendations for Curriculum and Instructional Materials. Los Angeles: Tyl Press, 1971.)

5.2 With rising costs and teachers' anticipation of decreased resources for innovative materials, the accommodation of learners' needs for diverse materials of varied ability and interest levels becomes an issue.

It is recommended that, with the large quantity of "almost appropriate" learning materials readily available, modification as an approach to learning materials improvement has considerable potential for providing an array of materials adapted to the needs of specific students.

(Adapted from Todd, D. and Hawthorne, R.D., "An Alternative with Considerable Potential: Modification of Curriculum Materials," *American Vocational Journal*, Oct. 1973, pp. 42-44.)

## DEVELOPMENT AND EVALUATION OF LEARNING MATERIALS

### *THE PROBLEM*

Given that schools are to provide equal opportunities for all learners, learning materials must be prepared that suit the needs, interests and abilities of all learners. And since educational programs are to be tailored to the needs of learners, those who develop learning materials must seek evidence about the adequacy of those materials for a particular student population. It follows that learning materials should be empirically tried out before they are approved for use on a large-scale basis.

Given both the current expenditure on learning materials at 1% of the total educational dollar and the diversity of materials available, development and evaluation of quality learning materials becomes even more critical. When learning materials lack validation information or adequate field test results, classrooms can become a continuous testing ground for inadequately developed programs and materials of unsatisfactory quality.

The concept of research in relation to curriculum development is generally used in two different ways. First, research can be taken to mean the "procedures by which the learning theory to which materials are related and from which they derive is formulated and validated. Secondly, it can be taken to mean the procedures by which the materials, once constructed, are tried out in the learning situation and modified in the light of feedback from teachers and pupils."[172]

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[172] J.R. Ungoed-Thomas, "Curriculum Material Comment: Educational Research and Curriculum Development," *Journal of Moral Education*, Vol. II No. 2, p. 172.

## PRODUCT DEVELOPMENT AND EVALUATION

Examination of development and evaluation models of learning materials reveals some basic problems. The increasing proliferation of development models merits attention regarding their usefulness when applied generally across varying circumstances and situations. The "models" typically used in educational development and evaluation appear not to be theoretical models since they generally lack explanatory and/or prescriptive features. They are probably best viewed as alternative, descriptive conceptualizations of development and evaluation processes. Several competing models of evaluation procedures exist, each based on differing assumptions and values concerning the evaluation process itself. Development models, however, frequently appear to emphasize managerial strategies.[173]

### *Development Models*

Development models appear to lack adequate empirical research foundations. Similar problems exist with research concerning the development of learning materials:

> studies for the revision process to improve the quality of curriculum materials have not been frequently conducted. There seems to be an overriding faith in the idea that materials revised to be consistent with empirical tryout data will become better. This has not been clearly demonstrated. Certainly the manner in which revisions can be made most efficiently has not been carefully treated.[174]

### *Evaluation Models*

A similar situation exists for evaluation models. Present evaluation models ". . . represent (individually and collectively) an inadequate

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[173] N.L. Smith and S.L. Murray, "The Status of Research on Models of Product Development and Evaluation," *Educational Technology*, March 1975, p. 13.

[174] W.J. Popham, "Curriculum Materials," *Review of Educational Research*, June 1969, Vol. XXXIX No. 3, p. 335.

knowledge base for the guidance of educational evaluation."[175] Additionally, research is needed on data collection techniques, feedback effectiveness under different conditions, identification and conduction of needs assessment and the lack of validity in techniques for presenting goals and priorities. Learning materials evaluation literature can be divided into three categories. The first consists of techniques derived from behavioral and educational science. This orientation focuses on instructional output and concerns itself with the "reliability" of a program--what it achieves and, possibly, how well. Secondly, examination of learning materials for internal "qualities" and "validity" rather than student achievement characterizes evaluation models and analysis schemes. Thirdly, careful conceptual analysis of learning materials may identify potential inherent in the materials beyond the intentions of the developers. The appraisal of learning materials then lies in "an analytical framework derived from a theoretical perspective or systematic conceptualization of the use of concepts and terms" used in or which describe curriculum practices.[176]

There is a lack of relatively good instrumentation for assessing learning materials in classroom instruction.[177]

*PROBLEMS IN CONDUCTING RESEARCH*

Given the need for research in evaluation and development procedures, two problems need to be solved before empirically based policies can be developed: "There appears to be little clarity in the field of instructional materials development regarding the actual purposes development and

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[175] B.R. Worthen, "Impediments to Practice of Educational Evaluation." Presented at AERA, Chicago, April 1972, p. 3.

[176] S. Mahung, "Conceptual Analysis: A Needed Dimension for Evaluating Science Curriculum Materials." Ontario Institute for Studies in Education, 1978, p. 13.

[177] W.L. Smith and S.L. Murray, "The Status of Research on Models of Product Development and Evaluation." *Educational Technology*, March 1975, p. 13.

evaluation models are being used for and, more importantly, the actual purposes for which such models were originally designed."[178]

*PUBLISHERS AND LOCAL CURRICULUM*

Given the numerous sets of criteria which are reported to contribute to quality learning materials (e.g., Klein lists nineteen "major publications and audiovisual programs" now available in the U.S.A.)[179] and the varying degrees of research and validation for them, legitimate concerns are whether these criteria are used in (a) the development of learning materials by producers, both local and commercial, and (b) the formative evaluation of materials by researchers.

*Publisher Perception*

Awareness of the difficulty of meeting educators' and students' needs for learning materials is recognized in the Canadian Book Publishers Brief to the Commission. They recommend that more research be directed toward the potential of different learning media and effective classroom use of those media.[180]

*TEACHER INVOLVEMENT*

Many of the arguments cited for teacher involvement in the selection of learning materials are also supportive of teacher participation in the evaluation of learning materials. As the primary purpose of evaluation is to provide data for the decision maker,[181] who is most frequently the

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[178] Ibid., p. 17.

[179] F. Klein, *Learning Materials*. Association for Supervision and Curriculum Development, 1978, pp. 10-13.

[180] Canadian Book Publishers' Brief to the Commission on "Declining Enrolments and School Curriculum Materials," March 1978, p. 4.

[181] T. Ward, "Questions Teachers Should Ask in Choosing Instructional Materials." *Teaching Exceptional Children*, Fall 1968, Vol. I No. 1, pp. 21-33.

teacher, teachers should be included in the evaluation process.[182,183] Concerning the question of "who" should be involved in materials evaluation, evidence shows that teachers place more faith in and have more positive attitudes towards evaluations that are teacher-based rather than those done by non-teaching personnel or professional evaluators.[184]

The instrument data reveal that both board and teacher respondents perceived the classroom teacher to hold both the most influence on curriculum decision making and on choice of classroom learning materials. Given the teacher's high degree of influence and the move towards local materials development, teachers could make a significant contribution to the evaluation of learning materials. Support from school boards in the form of policies, resources and teacher participation would be necessary for field-testing of local and/or commercial learning materials. Shared information on field-tested materials in other boards would provide additional data for local learning materials improvement and decision making.

*FIELD-TESTING OF LEARNING MATERIALS*

Table 22 provides data on the field-testing of learning materials and the communication of field-test results.

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[182] B. Lehrer, G. Melnick, and S. Greenberg, "Teacher Evaluations of Curriculum Development Programs." *Educational Technology*, May 1973, Vol. XIII No. 5, pp. 31-76.

[183] H. Grobman, *Evaluation Activities of Curriculum Projects*. AERA Monograph Series on Curriculum Evaluation. Chicago: Rand McNally, 1968.

[184] D.D. Baum, "The Attitude of Teachers of the Mentally Retarded toward Teacher Evaluation of Instructional Materials." *Education and Training of the Mentally Retarded*, 1972, Vol. VII No. 1, pp. 46-50.

TABLE 22

1) FIELD-TESTING OF LEARNING MATERIALS

| Board N = 90 | NOT AT ALL | SMALL EXTENT | MODERATE EXTENT | MAJOR EXTENT |
|---|---|---|---|---|
| Board field-testing of own materials | 22 | 21 | 35 | 22 |
| Board willingness to cooperate with publisher field-testing of commercial materials | 5 | 27 | 54 | 14 |
| **2) COMMUNICATION OF FIELD-TEST RESULTS** | | | | |
| Field-test results known to board schools | 20 | 27 | 25 | 28 |
| Field-test results known to other boards | 53 | 30 | 14 | 13 |
| Value having results from other boards | 3 | 15 | 43 | 39 |
| Value having results from commercial publisher | 8 | 18 | 42 | 32 |

All figures expressed as percentages.

Given the expressed need for learning materials evaluation and available product information, 57% of the boards reported field-testing of board developed materials to a moderate or major extent. However, 22% reported that they never field-test their materials. Ninety-five per cent indicated willingness to cooperate with publisher field-testing from other boards, 83% never or seldom communicated their results to other boards. However, boards (74%) valued having results from commercial publishers and, as stated above, were willing to cooperate with publishers.

While only approximately one half of the board respondents indicated that they field-test their own materials and make the field-test results

known to their own schools, over two-thirds of all board respondents reported both that they would cooperate with publisher field-testing and that they would value results from other boards and commercial publishers. Their findings strongly suggest that many boards not presently field-testing would like to do so. Board responses support the idea of field-testing learning materials. Approximately one-half of the board respondents reported that they do not make field-test results known to other boards and another 30% did so only to a small extent. This implies considerable duplication of effort and the need for improved communication between boards.

Improved communication and participation between people of varied knowledge and skills facilitates development and evaluation of learning materials for an improved product. Two examples of development and evaluation models follow.

DEVELOPMENT AND EVALUATION MODELS - THREE MODELS

Many models focus almost exclusively on either development or evaluation. The models provided here go beyond most in that attention is given to both evaluation and development and the need for cooperation between research, publishers, policy-makers and teachers.

*DEVELOPMENT AND EVALUATION OF LEARNING MATERIALS IN ISRAEL*[185]

A special centre in Israel jointly operated by the Ministry of Education and a university serves as the central location for the organization of materials development. The Israeli model is an applied model for the utilization of evaluation in the process of developing learning materials. Evaluation here is defined as the "process of delineating, obtaining, and providing information on the merit of goals,

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[185]Transcriptions of Interviews between F.M. Connelly, P. Tamir and E. Eden are included in Appendix L. It is recommended that they be read with this section. Interviews were conducted during July, 1978.

designs, implementations, and outcomes of educational activities, to serve formative and summative purposes." [186]

*Major Assumptions*

Five major assumptions underlie the evaluation model and must be considered before application of the model in any given materials development effort. These are given as:

1) the development of learning materials implies a long process of co-ordinated efforts.
2) the development of learning materials must be a co-operative task of a group of persons with a wide range of expertise. An integrated team of specialists in the subject matter, learning theory, teaching methods, new media evaluation and writing techniques should be involved in the development of learning materials. It is suggested that this team would replace the traditional "textbook writer" for the development of quality learning materials.
3) formative evaluation should be an integral part of the developmental process.
4) curriculum developers should work with evaluation specialists and be trained in evaluation theory and techniques.
5) decision-makers throughout all levels of the development organization or project should be committed to the utilization of evaluation information in their decision-making.

*An Overview*

The evaluation model derived from experience in curriculum development which suggested that six major stages are involved in the co-ordinated development of an instructional unit. Each developmental stage is accompanied by evaluation activities. (See figure 3.)

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[186] N.D. Plett, "Model for Utilisation of Formative Evaluation in the Process of Developing Instructional Materials," *Programmed Learning*, Vols, XIII-XIV, May 1977, p. 127.

| Developmental Stage | Evaluation Activity |
|---|---|
| 1) Planning | Context evaluation |
| 2) First draft | Evaluation by unit developers |
| 3) Pre-trial edition | Inspection by experts |
| 4) Experimental edition | Laboratory trials |
| 5) Semi-final edition | Field trials |
| 6) Final edition | Reporting |

Figure 3. Developmental Stages and Evaluation Activities in the Process of Developing an Instructional Unit. [187]

The movement from one stage to another is based on information provided by evaluation activities. Through co-operation and communication between a wide variety of specialists and practitioners each stage includes the development, evaluation and revision of learning materials for the next stage of development.

*The Process*

The development process starts with a planning stage in which the development team "clarifies its task and structures the nature of the curriculum unit to be developed." A first draft of the unit is then developed and evaluated by the members of the development team to "check its congruence with the rationale underlying its development." The first draft is then revised into a pre-trial edition and submitted for inspection to a group of experts. Based on the feedback obtained from the various experts, "an experimental edition of the unit is developed to be tried out with students and evaluated under laboratory conditions. A further revision of the unit is then introduced into a natural setting of the school and evaluated under conditions that hopefully approximate normal use of the unit. Based on the evaluation of this field trial a final revision of the unit is conducted. The unit may now complete its entire cycle of development and be ready for wide distribution and

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[187] Ibid., p. 128.

summative evaluation by potential users. The final edition of the unit is accompanied by an evaluation report which describes the entire developmental effort and presents the evaluation data gathered during the process of development.[188]

*LEARNER VERIFICATION AND REVISION - A MODEL*

One of the outcomes on the issue of product development and evaluation has been a process called Learner Verification and Revision (LVR). LVR procedures tend to formalize communication and cooperation between practitioners and publishers on the one hand and teachers and students on the other. Thus, the development of learner materials may become more of a joint effort. Specifically, learner verification is defined as the "empirical process of data gathering and analysis by which a publisher of a curriculum material has improved the instructional effectiveness of that product before it reaches the market and then continues to gather data from learners in order to improve the quality and reliability of that material during its full market life."[189]

The appeal of producing empirical evidence of the accomplishments of students using the materials has spread from legislation in 19 U.S. states to extensive use by the Alberta Department of Education in Western Canada. Even with strong positive support from such sponsoring agencies in the United States as the National Institute of Education, the National Science Foundation and the United States Office of Education,[190] not enough investigation has been done into the underlying assumptions of this and other models.[191]

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[188] Ibid., p. 129.

[189] K. Komoski, Learner Verification "Touchstone for Instructional Materials," *Educational Leadership*, Vol. XXXI, February 1974, pp. 397-399.

[190] H. Stolavitch, "Shaping Special Education Through the Intermediate Technology of Learner Verification and Revision," University of Montreal, April, 1977.

[191] N.L. Smith and S.L. Murray, The Status of Research on Models of Product Development and Evaluation." *Educational Technology*, March 1975.

Despite the relatively widespread adoption of Learner Verification and Revision as a model, basic problems and controversy exist in attempts to hold publishers accountable for their products. Some of the current concerns are as follows: lack of clear definition of requirements for empirical evidence of LVR leads to confusion for publishers and educators; lack of consensus on the type of material to which LVR should apply; controversy over how LVR data are to be collected, reported, and used as evidence of the effectiveness of the material; fear that data reported from field-testing may be misunderstood and misused by practitioners; protection of students' privacy and teachers' academic freedom as publishers gain increasing access to classrooms, lack of a clear relationship of LVR to quality learning materials and lack of clearly defined responsibilities for the learning resulting from using specific materials.[192] Publishers reason they alone cannot be held accountable for materials effectiveness.[193]

The Ontario Ministry of Education shares this responsibility in part through the activities of the Research Branch.

*MINISTRY OF EDUCATION CONTRACTED RESEARCH*

The Ministry of Education has funded 465 Contractual Research and Grants in Aid proposals since 1971 for a total of $13,861,000.[194] Results are widely disseminated through a fact sheet called "Educational Highlights." Access to this accumulating data base is through the Educational Information Services for Ontario (EISO) and the Ontario Educational Research Information Service (ONTERIS).

It was decided in 1977 to include within the ONTERIS data base all curriculum documents which have been produced by both the Ministry and

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[192] F. Klein, *Learning Materials*. Association for Supervision and Curriculum Development, 1978, pp. 21-23.

[193] Canadian Book Publishers' Brief to the Commission on Declining Enrolment and School Curriculum Materials, March 1978, p. 3.

[194] B.M. Hildebrand, *Educational Information in Ontario: A Government Perspective*. Ministry of Education, Ontario, 1978, p. 2.

school boards.[195] The advantage to local school boards of this on-line data is apparent as local materials development can be facilitated by almost immediate knowledge of other school board developed courses of study from certain guidelines.

To assure a broad access to that system, "communication links will be established between the Ministry, research institutions, and school boards to supply ONTERIS with their materials as they are developed."[196] Similarly, school boards will have immediate access to this stored information for providing input into local learning materials development and revision.

A Quality Learning Materials Centre, independent of the Ministry of Education, could complement the Ministry Research Service by acting in the capacity of coordinator and major resource center for educators, publishers and policy-makers involved in learning materials development and evaluation.

*QUALITY LEARNING MATERIALS CENTRE - A MODEL*

This author feels a case has been made for the development of a Quality Learning Materials Centre, perhaps somewhat akin to the old Ontario Curriculum Institute.[197] The Centre would need to have at least four interacting components--a government body, a knowledgeable staff, an arrangement with publishers and a feedback system for improved knowledge of material effectiveness. The experience gained by the Canada Studies Foundation in working with policy makers, educators, academicians and publishers should not be minimized.

Cooperation and support from the Provincial Curriculum Director's office is essential. Priorities on time lines would be communicated to the governing teams of officials, publishers, academics and teachers.

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[195] Ibid., p. 6.

[196] Ibid., p. 7.

[197] J.R.H. Morgan, "The Ontario Curriculum Institute," *Education* 5, (Toronto: University of Toronto, 1965), p. 81.

For example, the perspective gained from the Council of Ministers striving for an overall policy of education for Canada facilitates better understanding of the plight of publishers, educators and policy-makers. And publishers' timelines for their products tend to be much shorter than those used by academics. Early cooperation between these four groups facilitates an improved product as funded priorities provide direction for academic contribution, teacher field-testing and publisher dissemination. The Scottish Research Council and the described Israeli approach are examples. (See Appendices A and L.)

*The Staff*

Financial support could be arranged with school boards, universities and Teachers' Federations in return for inservice opportunities and professional resource services. For example, schools in Israel each contribute one hundred dollars annually in return for Centre services. A similar arrangement exists in Scotland.

Secunded staff from both schools and universities could do much of the preliminary planning, development, and field-testing of quality learning materials. Ready access to advice from scholars and teachers and information available through both EISO (Educational Information Services for Ontario) and ONTERIS (Ontario Educational Research Information Service) could provide for informal incremental improvements and sharing of information around the province. The Scottish Research Council and the Israeli model provide some ideas for the sharing of staff.

*The Publishers*

A collaborative relationship between publishers and Centre staff would benefit publishers as priorities could be determined, development costs shared, products more thoroughly reviewed and field-tested through some adapted evaluation format. Both the Learner-Verification model and the system used by the publisher described in the Netherlands example, may have some merit here. Experienced, knowledgeable teachers who are redundant or on paid leave could work with Centre staff and publishers in developing quality learning materials. Royalties from completed

products could revert to the Centre and supplement the necessary financial support for its continued operation.

*Field-Testing*

Both experienced and inexperienced teachers would provide valuable feedback as this reflexive process would facilitate the development of improved learning materials. Both the training provided in the local teachers' centres described earlier and the process used in the Israeli model have considerable potential to provide professional enrichment, increased morale and quality learning materials. Inservice opportunities and alternative forms of learning materials developed by Centre staff with participating teachers could facilitate teacher use of these materials for diverse instructional purposes.

Analysis of learning materials by Centre staff using same or all of the earlier-mentioned evaluation could facilitate informed selection by teachers from a Quality Learning Materials Yearbook sponsored by the Centre.

*IMPLICATIONS FOR QUALITY LEARNING MATERIALS DEVELOPMENT*

The cooperation of government, academics, teachers and publishers facilitates the meeting of local needs. Sharing facilities, personnel and costs in the interagency arrangement allows a reflexive process of planning, development, implementation and evaluation to capitalize on the knowledge and expertise of all participants for an improved product. Local autonomy combines responsibility with authority to find solutions to particular problems and needs as identified in part by practitioners. Free flowing access to product information provides incremental growth for both practitioners and researchers.

> Among other external conditions affecting the work of the future classroom teacher might be mentioned . . . the institutes of educational research and the committees of curriculum experts which will produce the seminal ideas and the experimental versions of textbooks and teaching aids which the teacher will be asked to try out and evaluate. The key to the success of the changing and evolving school, however, will always be informed, committed, and enthusiastic teachers who work with

> pupils every day, and who somehow must come to feel that they are part of the process of educational change and not the victims of it.[198]

Improved communication through publications, newsletters and travelling exhibitions increases the likelihood of providing for equality of educational opportunity and individual differences during declining enrolments as practical problems are identified, confronted and resolved.

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[198] D.H. MacIver, "Curriculum and Instruction in 1975", *Concern and Competence in Canadian Education*, Governing Council, University of Toronto, p. 44.

## IMPLICATIONS AND RECOMMENDATIONS

Confusion exists over *who* should develop learning materials and what should be the conceptual organizers and methods for planning and evaluating these learning materials. Until such time as the function of curriculum development and evaluation and of those most involved is more clearly conceptualized, it is likely that teachers will continue to experience difficulty using these materials and developers will continue to experience frustration in implementing them.

1. Needed Research

   1.1 It is recommended that the Ministry of Education sponsor research on how much of the variance in student learning is attributable to the learning materials used.

   1.2 It is recommended that the Ministry of Education sponsor research to better understand those characteristics of learning materials that have a demonstrably positive influence on student learning.

   1.3 It is recommended that the Ministry of Education sponsor research at both the provincial and local level using interdisciplinary teams of researchers, instructional specialists and secunded practitioners to expose value claims in learning materials. Worthy of such study, for example, is the matching of curriculum conceptions and intentions with development projects and identifying the extent to which a given subject is explained by the view presented.

   1.4 It is recommended that the Ministry of Education sponsor research and evaluation to determine and improve the quality of learning materials, for example: how learning materials are being used in the classroom; what are the specifics of related pre-service and in-service training; how can learning materials best contribute to the various

learning experiences provided for students; pupils' selection and use of learning materials; and criteria teachers use to make decisions about curriculum and learning materials in Ontario schools.

1.5 It is recommended that the Ministry of Education and local school authorities endeavor to ensure broad and meaningful participation development and infield testing of proposed learning materials.

1.6 It is recommended that the Ministry of Education and educational researchers be encouraged to investigate high priority research questions arising from assessment findings and recommendations. Those areas of examination include:

a) possible discrepancies in resource funding between urban and rural school boards;

b) the reasons why many teachers appear to be unfamiliar with certain prescribed resources;

c) the definition of professional development and its implications for the improvement of quality learning materials.

(Adapted from British Columbia Assessment Survey, 1977.)

2. Planning and Development

2.1 As compared with teachers' perceptions, boards overestimate the quality of locally developed learning materials provided as a resource for teachers and also differ with teachers on the aspects of the materials most needing improvement.

It is recommended that evaluation be built in at every stage of the learning materials development process to facilitate informed planning based on early feedback. (See, for example, the Israeli model, p. 101.)

3. Role Clarification

3.1 It is recommended that defensible roles of the general public, students, teachers, relevant experts, and local and provincial education authorities be defined and acknowledged through incorporation into the process of learning materials development, selection and evaluation.

4. Choice among Alternatives

4.1 It is recommended that the Ministry of Education sponsor research to investigate the usefulness of available rating scales for various stages in the development of learning materials in order to arrive at quantitative indices regarding the suitability of competing learning materials.

5. Quality Learning Materials Centre

5.1 It is strongly recommended that a Quality Learning Materials Centre be established.

# APPENDIX A

## ALTERNATIVE ARRANGEMENTS - AN EXAMPLE

### *SCOTTISH EDUCATION DEPARTMENT*[1]

*Role.* The Scottish Education Department has an advisory role in education; it does not for example approve lists of textbooks. It has, however, a very powerful influence through its support of particular research and development projects, and through the inspectorate. Legal responsibility for a curriculum lies with the Local Authorities, and in practice schools have a great deal of autonomy. The Board of Studies makes planning decisions about the amount of time to be allocated to each subject, but within that broad allocation the departments make their own decisions about the curriculum and the materials.

The Scottish system therefore is a partnership with a division of responsibilities.

*The Scottish Council for Research in Education.* Cooperation, and ultimately the implementation of findings requires the active participation of teachers, Local Authorities, Scottish Education Department and the universities and colleges of education. The board has representatives from each group. The professional staff are divided into three groups: the permanent staff consisting of the administration, the support staff, and a very small number of full-time researchers. The majority of free-lance researchers are brought in on contract to staff particular projects because they have particular skills, and finally teachers are secunded from local authorities to particular projects. Again, because they have particular skills or particular backgrounds in some aspect of schooling.

*Funding.* A basic grant from the Scottish Education Department, the Local Authorities and the teacher organizations covers the facilities and the permanent staff. Virtually all projects are funded on an individual basis, either on the "customer/contractor" principle or by means of grants. Negotiated research and contracts are completed for government agencies, Scottish Education Department, Local Authorities and Teachers' Associations.

[1]B. Dockrell, Director, Scottish Research Council. Personal Communication.

Grants are also available from the Social Science Research Council by submitting proposals of a more theoretical nature.

*Location.* Although the central office is in Edinburgh, teams of researchers are located in other parts of the country. An effort is made to conduct projects and conferences in all parts of the country.

*Publications.* They publish books and pamphlets. Seven or eight books are published per year with the cooperation of publishers who share development costs, and a biannual newsletter is sent to every teacher in Scotland. Conferences are organized on particular topics throughout the country and a travelling exhibition visits colleges, universities and teachers centres.

*Researcher/Practitioner Relationship.* The initiation of this relationship is at two levels: one level is that of the formal organization. Regular meetings are held with the teachers association. Occasionally the approach is from an individual school.

Cooperation at the second level is initiated by an approach from the researcher to particular schools or individual teachers. For survey work they are selected on a random basis, but for more intensive work the selection is always individual.

The coordination is formal; every project has an advisory committee with representatives of the groups involved; teachers, administrators, councillors, parents, employers and trade unions, and so on. While these committees are not responsible for day to day coordination of the research and the practitioner, they provide a sounding board for ideas before they are actually tried out in schools. The day to day cooperation is informal and depends upon the skill of the individual researcher in maintaining the interest and participation of the practitioners.

The major advantage of the structure is that prior approval is gained from the organizations representing the practitioners before anything is undertaken. The organization can be counted upon to facilitate communication and entry into the schools.

*Problems.* The major problem is one of systematic communication. Findings need to get to teachers in a more systematic way and better communications are needed to inform those responsible for making the

decisions at a particular point, whether the local authorities, the head teacher, or whoever. In experimenting with "collaborative research" where the researcher is an enabler offering support to teachers it is felt that it is unreasonable to expect teachers to do the amount of work required without some special provision within the school.

*Related Problems in Ontario.* The increased emphasis on professional upgrading and a gradual reorientation of teacher training has yet to result in the widespread use of specialized skills. Graduate degrees, however, in Scotland have been awarded for over fifty years and a substantial group of people with these qualifications has built up. Another problem is one of distance. Decentralization can result in dissipation of resources whereby a small staff in a field centre would have to concentrate on one or two projects or spread themselves very thin indeed. The third problem is the role of the Ministry of Education and the local authorities. A better balance needs to be worked out between what is expected and what can be reasonably done given available resources.

*The Lesson.* The cooperation of government, academics, teachers and publishers facilitates the meeting of local needs. Sharing facilities, personnel and costs, by the inter-agency arrangement, allows a reflexive process of planning, development, implementation and evaluation to capitalize on the knowledge and expertise of all participants for an improved product. Local autonomy combines responsibility with authority to find solutions to particular problems and needs as identified in part by practitioners. Free flowing access to product information provides incremental growth for both practitioners and researchers. Improved communication through publications, newsletters and travelling exhibitions increase the likelihood of equality of educational opportunity as problems in practice are identified, confronted and resolved.

APPENDIX B

BIBLIOGRAPHY OF ADDITIONAL SOURCES

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## QUESTIONS IN BOARD AND TEACHER INSTRUMENTS COMPRISING THE TABLES

| *Table Titles Listed by Order in Report* | *Board Questionnaire On Curriculum and Instructional Materials* ( Appendix "E" ) | *Board Questionnaire On Program Change and Potential Solutions* ( Appendix "F" ) | *Teacher Questionnaire on Curriculum Change* ( Appendix "G" ) |
|---|---|---|---|
| 1. Changes in Reliance and Need for Specificity in Ministry Guidelines | 11.1-12.1 | | |
| 2. Value of Potential Solutions | | 28,29,30,34(Sec.G) | 27,28,29,33(Part D) |
| 3. Teacher Perception of Usefulness of Ministry Guidelines as a Teaching Resource | | | 8.1-8.10(Part B) |
| 4. Circulars 14 and 15 as Board Resource | 4.1-4.6 | | |
| 5. Circulars 14 and 15 as Teacher Resource for Selection of Materials | | | 12.1-12.3(Part B) |
| 6. Source of Information on New Learning | 14.1 | | 9.1(Part B) |
| 7. Amount of Instructional Time Spent and Percentage of Elementary and Secondary Subjects Taught Using Non-circular 14 Materials | 18, 19, 20 | | |
| 8. Ministry Book Purchase Plan | 3 | | 1(Part B) |
| 9. The Learning Materials Development Plan | 22.1-22.6, 23 | | |
| 10. Process of Board Curriculum Guideline Implementation | 21.1-21.4 | | 11.1-11.4(Part B) |
| 11. Board Allocation of Resources for Curriculum Development and Implementation Over the Next Five Years | 5.1-5.2 | | |
| 12. Resources - Value of Selected Actions for Materials Development | | 15,27,33(Sec.G) | 15,21,26,32(Part D) |
| 13. Value of Potential Solutions | | 2,9,10.1-10.2, 12,14,20 (Section G) | 2,9,10.1-10.2,12, 14,20 (Part D) |

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## QUESTIONS IN BOARD AND TEACHER INSTRUMENTS COMPRISING THE TABLES

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|---|---|---|---|
| 14. Board Changes in Reliance on Sources of Learning Materials and Need for Specifity in Materials from These Sources | 11.1-11.8, 12.1-12.9 | | |
| 15. Influences on Curriculum Decision-Making | 7.1-7.9 | | 2.1-2.9(Part B) |
| 16. Influence on Choice of Classroom Learning Materials - Local Level | 15.1-15.4 | | 2.3,2.4,2.5,9.7 9.8 (Part B) |
| 17. Sources of Information on New Learning Materials | 14.1-14.9 | | 9.1-9.9(Part B) |
| 18. Changes in Availability of Learning Materials and Resources | | 6,7,8,9,11,12,13, 14,15(Sec. F) | 6,7,8,9,11,12, (Part C) |
| 19. Comparison of Materials and Resources by Increase in Availability | Not Applicable | Not Applicable | Not Applicable |
| 20. A Comparison of Local, Commercial and Teacher Prepared Materials as: (i) a source of ideas; (ii) need for improvement; and (iii) a resource for curriculum development | 8.1.1-8.1.10, 8.2.1-8.2.10, 9.1-9.10 | | 3.1-3.9,4.1-4.9, 5.1-5.9,6.1-6.10 7.1-7.10,10.1-10.10 (Part B) |
| 21 Ranking of Categories within Foci | Not Applicable | Not Applicable | Not Applicable |
| 22. Field-Testing of Curriculum Materials and Communication of Field-Test Restults | 1.1-1.2,2.1-2.2 | | |

APPENDIX I

MINISTRY CRITERIA FOR TEXTBOOK AND KIT EVALUATION

In evaluating a textbook or kit, reviewers should proceed as follows: Provide a detailed written evaluation of the book or kit considering each of the headings noted below. Because of the varied nature of the books and kits submitted for evaluation, the questions posed will not be appropriate to every case. The individual judgment of evaluators will suggest additional criteria which should be freely employed.

*CONTENT*

To what extent is the content directly related to one or more Ministry of Education guidelines? Please be specific in reference to each guideline mentioned.

What proportion (answer in general terms) of the information is:

a) factual
b) the opinion of the author
c) opinions expressed by individuals being quoted
d) hypothetical case studies appropriate to the guideline
e) unsupported generalizations
f) activities for students
g) conveyed by charts, graphs, and pictures?

Is the information accurate and up-to-date?

Is there any offensive language?

*SUITABILITY FOR STUDENTS*

What is the reading level of this material? (Give a grade range based on your experience.)

What is the mathematical level of this material? (Applicable to mathematics and science books.)

How well do illustrative materials (e.g. pictures, graphs, and charts) and student activities contribute to the teaching purposes of the publication?

If color is used, is it used effectively? Is its use necessary?

*BIAS*

Does this text or kit give an impression of racial, ethnic, religious, sex or other bias through biased statements or pictorial information or through omission? Where possible, identify examples by specific page number and explanation of the bias noted. For further assistance in identifying examples of sex-role bias, please see the section on this topic.

*FORMAT*

Are the paper and binding durable and appropriate to the intended use of the material?

Are typography and layout legible and attractive?

*USAGE APPLICABILITY*

How would you use this material in the classroom - as a textbook or reference? - that is, purchase quantities sufficient for the use of pupils (this does not necessarily mean one for every pupil) or as a *reference* book, that is, just purchase a few to be kept on the reference shelves? (For definition of a textbook see para. 2 on page 8 of Circular 14 (attached).

RECOMMENDATION SHEET TO BE ATTACHED TO YOUR EVALUATION REPORT

This text or kit is suitable for listing in Circular 14?

(A 'yes' response indicates that your review leads to the conclusion that the text/kit relates directly to one or more specific guidelines and is suitable as a result of your response to the other questions)

YES

NO

If the response is 'yes' please complete the following:

The listing in Circular 14 should appear for the following guidelines:

1. _____

2. _____

3. _____

This text/kit is suitable for students in the following divisions:

(Check where appropriate)

1. Primary (K-3) _____
2. Junior (4-6) _____
3. Intermediate (7-10) _____
4. Senior (11-12) _____
5. Honor Graduation _____

NAME OF TEXT/KIT _____

NAME OF REVIEWER _____

DATE _____

## EVALUATION FOR SEX BIAS

You will note that on the enclosed evaluation sheet one of the areas identified is that of sex bias. The Ontario Status of Women Council has provided the Ministry of Education with a list of questions which have been designed to indicate various forms of sex bias. We are providing you with this material so that you may take it into consideration in your evaluation of the textbook which has been forwarded to you.

## GENERAL CONSIDERATIONS

1. Does the text include a wide variety of human occupations, activities, and interests open to both women and men?

2. Do the human experiences in the text include reference to both men and women?

3. Do the messages conveyed about society and a person's place in it imply equality of women and men?

## STEREOTYPING

### LANGUAGE

1. Is the language used equally applicable to men and women? Boys and girls?

2. Is there unnecessary use of the masculine nouns "man", "mankind" and pronouns "he", "his", as generic terms?

3. Does the language used make assumptions about sex roles?
   e.g. policeman, fisherman;
   the executive - he
   the principal - he
   the secretary - she;
   the teacher - she.

4. Are the terms "girl", "boy" and "woman", "man", accurately used in reference to female and male persons?

### ROLES

1. Do the text and illustrations show men and women, girls and boys in non-stereotyped roles, in positive and objective ways?

   - Are roles portrayed as being equally valuable and appropriate for both women and men?

   - Are women portrayed positively in a variety of roles whether they work inside or outside the home and whether or not they have children?

- Are men and boys, women and girls shown in household and nurturing tasks?

- Is there a variety of family patterns shown in a positive way (extended, nuclear, two-parent, one-parent)?

PERSONALITY CHARACTERISTICS

1. Are particular emotions and feelings portrayed as being applicable to, and appropriate for, both women and men?

2. Do both girls and boys have adventures, think logically, exhibit athletic prowess, explore and create, cooperate with one another?

INCLUSION OF KITS IN CIRCULAR 14 (Excerpted from Circular 14, page 8)

Starting in 1977, CIRCULAR 14: *Textbooks* will list, in addition to textbooks, kits that have been approved for use in Ontario schools. Kits are selected on the basis of their intended use, that is, only those kits are eligible that perform essentially the same function as a textbook. For this reason, approved kits may be regarded as *textual materials* in the same way as textbooks.

Two criteria are used to make a distinction between textual materials and supplementary or reference materials: (1) Textual materials are intended for pupil use, not teacher use, and therefore must be available in numbers sufficient for the use of pupils (i.e., for textbooks, one copy for each pupil or, where a variety of materials is used, a minimum of six copies for the use of an average class; in the case of kits, a kit must be of such a nature that it may be used by all pupils in the class or not fewer than a group of six at one time); (2) textual materials are materials that are essential to the basic program for a significant unit of time.

In keeping with the above, the following criteria will be applied in considering materials for inclusion in *Circular 14*:

1. A kit must be designed to fill a role that is analogous to that of a textbook, as described above.

2. The majority of a kit's contents must be in printed form. A kit consisting exclusively or principally of audio-visual materials will not be eligible. At the same time, a package consisting exclusively of textbooks and teachers' manuals will not be defined as a kit.

3. All items in a kit must be of Canadian authorship and manufacture. When special circumstances dictate, inclusion of items of non-Canadian origin may be permitted.

4. A kit that is supplementary to a textbook will be eligible provided that it fills a central role in the learning program of which the textbook is a part.

5. It is recognized that consumable supplies form part of many kits. However, to be eligible for inclusion in *Circular 14*, at least 80 per cent of a kit's contents must be sufficiently durable to last three years. If consumable items are included, the kit must contain clear instructions as to how replacements may be obtained.

6. If a kit includes a teacher's manual, it should be a guide to the use of materials in the kit and should not form a major component of the cost of the kit.

APPENDIX J

Where it is feasible to do so, priority will be given to companies operating in Ontario.

All applications under this mode must involve the publication or production of learning materials; funding will not be available for projects involving development only.

A publisher or producer of learning materials may apply for assistance for the development, production, and publication of learning materials or only for the production and publication of materials, if their development has been completed.

The copyright on materials produced will be negotiated between the publisher and the author; the Ministry will have no direct involvement in matters of copyright.

**Financial Considerations**

The Ministry will fund part of the development and production costs; the publisher or producer will also be involved in funding some of the costs.

The proportion of the costs to be borne by each of the two parties will depend on such factors as the nature of the project, the potential market, and overall costs.

The budget should include the following: the complete development and production costs of the project; a summary of the funds required from the Ministry, including a detailed breakdown of anticipated expenditures and income; the proposed price of the learning materials.

Among the costs that may be included in a proposal under this mode are the following: secretarial and editing; physical materials; duplicating and rough artwork for field-testing; production artwork; permissions; typesetting; paper, printing, and binding; distribution. Similar expenses may be included for the production of non-print materials.

The anticipated size of the production run should be stated as well as the rationale for the run.

Normal company policy should be applied in calculating the percentage of overhead operating expenses, the payment of royalties, the period in which the initial outlay is recovered, and so on.

In special circumstances, a project may require the engagement of an author on a salary rather than on a royalty basis. In such cases, the materials should be produced with reduced royalties so that costs are kept as low as possible.

**MODE 2: NON-PROFIT ORGANIZATIONS**

The Ministry will consider applications from non-profit organizations for the development of learning materials of province-wide applicability only. Local curriculum development projects will not be considered eligible.

Only in special circumstances, where production is normally a part of the activity of the organization, will consideration be given to production under this mode.

In order for an organization and its projects to qualify under this mode, the following criteria must apply:

1. By *non-profit* organization is meant one of the following: a school board; a teacher-education institution; a teacher association; an incorporated non-profit organization that carries on educational activities as a normal part of its operation.

2. A project proposed for funding must reflect the priorities of the organization as a whole rather than of individuals within it, and the application must be supported by a formal statement such as a resolution of the school board or other governing body to the effect that the project actually has this support.

The finished product under this mode will be an acceptable manuscript in the case of print materials; in the case of non-print materials, the finished project will have reached a stage at which planning and design decisions have been taken, but without any commitment to major production costs.

Once the developmental stage of the project has been successfully completed, the Ministry, where appropriate and after consultation with the applicant, may alert potential publishers and producers to the availability of the materials for production and distribution.

Copyright will be retained by the applicant.

**Financial Considerations**

Among the costs that may be included in a proposal under this mode are the following: secretarial and editing; physical materials; duplication and rough artwork for field-testing; honorarium or salary to writers. (Note: The maximum per diem allowance is not to exceed $85.) High-quality artwork (of production standard) may not be included under this mode unless such artwork is central to the project.

Ministry of Education
Ontario

Honourable Thomas L. Wells
Minister of Education

# Learning Materials Development Plan, 1978

**Introduction**

The purpose of the Learning Materials Development Plan is to encourage the development and production of Canadian learning materials. It is designed primarily to meet the needs for learning materials that might not otherwise be fulfilled because of prevailing market conditions.

The term *learning materials* means any materials designed to facilitate learning, including books (whether textbooks or books of a more general nature — workbooks are excluded) and non-print materials. Such materials are intended for the use of students or students and teachers together.

The plan operates in three modes. Each mode applies to a particular group in the educational community and each has a different set of rules regarding application procedures.

All applications for funding will be considered on a competitive basis by an independent advisory committee, which will determine the criteria for the adjudication of all applications. The committee will recommend to the Minister the projects that should receive support from available funds.

Once a project has been accepted for funding, an agreement will be drawn up between the Minister of Education and the applicant that will specify the commitments and understandings of each party.

Only those proposals that focus on French as a second language will be eligible to compete for a major portion of the funds under the Learning Materials Development Plan, 1978. A smaller portion will be used to honour commitments for ongoing projects that were selected for funding in 1975, 1976 and 1977.

The remaining funds will be allocated to projects that focus on multiculturalism and Special Education, which are still on the priority list established in 1977. At that time some 300 projects were adjudicated; of these 70 were recommended for financial support. Several others that were similarly deemed eligible for assistance were placed on a priority list in the event that more funds were to become available.

**General Rules and Operating Procedures**

1. Projects must respond to the single priority, French as a second language. See the specifications at the end of this brochure.

2. The learning materials to be developed should be free from bias (especially racial, religious, sex, and age bias).

3. To be eligible for funding, a project must involve Canadian authorship and, where appropriate, manufacture.

4. SI units of measure (le Système International d'Unités) should be used wherever appropriate.

5. An agreement made with a commercial firm or non-profit organization must identify at least one official from that body who will act as a representative for the conduct of the work specified in the agreement.

6. One Ministry official will be associated with each project until its completion.

7. Projects may involve field-testing of materials. The proposal should state whether or not field-testing is planned.

8. Funds made available under this plan may not be applied towards the purchase of major items of equipment.

9. Where travel and living expenses will be incurred, these are to be specified in the budget.

10. Upon completion of the project, the Ministry of Education shall receive three copies of each developed prototype of print material and/or one copy of non-print material. The proposed budget should reflect this requirement.

11. No acknowledgement is to be made in the learning materials of the Ministry of Education, of its officials, or of the plan.

12. The Ministry of Education may request that those who receive funding through the plan submit an audited statement and other appropriate information detailing the use of any funds received.

**MODE 1: PUBLISHERS AND PRODUCERS**

This mode is open to publishers and producers of learning materials. Companies that have been incorporated for less than three years must submit a brief résumé of their activities and scale of operation, in addition to the information mentioned below.

Any company may be asked to send in samples of recent work in support of an application.

## MODE 3: INDIVIDUALS

Individuals (or groups of individuals) operating independently of an organization may apply for assistance only for the *development* of learning materials of province-wide applicability.

Curriculum development projects will not be considered eligible.

The finished product under this mode will be an acceptable manuscript in the case of print materials; in the case of non-print materials, the project will have reached a stage at which planning and design decisions have been taken, but without any commitment to major production costs.

Once the developmental stage of the project has been successfully completed, the Ministry, where appropriate and after consultation with the applicant, may alert potential publishers and producers to the availability of the materials for production and distribution.

Copyright will be retained by the author.

## Financial Considerations

Among the costs that may be included in a proposal under this mode are the following: secretarial and editing; physical materials; duplication and rough artwork for field-testing. High-quality artwork (of production standard) may not be included under this mode unless such artwork is central to the project.

An honorarium or salary for those involved in the development of the materials is *not* permitted under this mode.

## APPLICATION PROCEDURES FOR ALL MODES

There is no official application form. Applications should be submitted on a standard size of paper – 8½" by 11" or Metric A4. No additional cover or binding should be used. A separate application must be submitted for each project. Each application should include:

1. A cover page that gives the following information:

- a short descriptive title of the proposed project;
- an indication of the mode under which the application is being submitted;
- the name of the company, organization, or individual making the application;
- the name, address, and telephone number of the official of the company or organization with whom contact may be made, or the address and telephone number of the individual (under Mode 3);
- an indication of both the total budget for the project and the amount of funding requested from the Ministry;
- an indication of the anticipated completion date of the project. Projects should be completed within a period not to exceed two years.

2. A one-page summary of the scope of the project, including a statement of the need that is to be filled by the project.

3. A detailed plan of the project including a schedule for the project and the procedures to be followed.

4. The qualifications and experience of the personnel who are significantly involved in the project.

5. A complete breakdown of the budget for the project, including an indication of the extent to which Ministry funding is considered necessary. For further details, see the section on each mode entitled "Financial Considerations" and the introduction.

Applicants should indicate whether they have received funds from, or made application to, other sources.

6. A storyboard, a script, or a full and detailed synopsis where applications propose the production of films.

7. A proposed table of contents and, where appropriate, a sample chapter where applications propose the development/production of books.

8. Copies of English versions where applications propose the translation/adaptation of existing English-language materials.

9. Any other material that applicants consider relevant.

Applications for funding must reach the Secretary by 1978 04 21.

Applications must be signed by an authorized official of the company or organization or, in the case of Mode 3, by the individual(s) concerned.

Applications should each be made in 12 copies.

Every effort will be made to notify successful and unsuccessful applicants by 1978 06 23.

Applications should be addressed to:

The Secretary
Learning Materials Development Plan
Curriculum Branch
Ministry of Education
Mowat Block, Queen's Park
Toronto, Ontario
M7A 1L2
Tel: (416) 965-6604

## PRIORITY

The proposals eligible for competition are those that focus upon French as a second language. Print and non-print learning materials are needed in the following areas:

### A. Core French Programs

1. Materials in French that will extend student knowledge of French-Canadian culture with an emphasis on:

a) the similarities between French- and English-Canadian cultures for the Primary and Junior divisions;

b) the differences between the cultures for the Intermediate and Senior divisions;

c) cultural, social, and political issues that are relevant to the lives of young people;

d) those aspects of culture that will lead to active language use;

e) those aspects of culture through which French and other subjects can be interrelated.

2. A series of 16 mm films in self-contained episodes of approximately 10 min. in length, which have some continuity in character and plot.

3. Texts intended to form part of a series to develop competence in the four language skill areas.

### B. Extended French Programs

1. Texts to serve as a basis for Junior, Intermediate, or Senior Division courses in subjects other than French, when these are taught to English-speaking students in the French language. Such texts would use a controlled level of French appropriate to the competence of the intended student population.

2. Texts intended to develop the superior level of French-language competence that is the objective of extended programs.

Ce dépliant paraît en anglais seulement car pour répondre aux besoins des écoles de langue française, le ministère a établi un autre programme de subventions intitulé "Fonds de langue française". Pour renseignements supplémentaires, communiquer avec M. Rossire Cloutier, Direction des programmes, Ministère de l'Éducation, Édifice Mowat, Queen's Park, Toronto, Ontario M7A 1L2

*A COMPARISON OF LOCAL, COMMERCIAL AND TEACHER-PREPARED MATERIALS AS: A SOURCE OF IDEAS; NEED FOR IMPROVEMENT; AND A RESOURCE FOR CURRICULUM DEVELOPMENT USE (DETAILED SUMMARY OF TABLE 20)*

*Objectives*

Both teachers (60%) and board personnel (90%) report local materials as a moderate to major resource for objectives in comparison to commercial materials. Seventy-four per cent of teachers and 55 per cent of board respondents cite commercial materials as a small to non-existent resource for objectives. Board staff are almost equally split on the need for improvement in commercial materials; however, 74 per cent of the teachers see an improvement in objectives as necessary in commercial materials from slight to most important. Both boards (87%) and teachers (68%) want to see instead improvement in *local* materials as a resource for objectives. Almost two-thirds of boards and teachers report local materials as the best source of objectives.

*Content*

Almost all board respondents (93%) report local materials as a greater resource for content than commercial materials (71%). Teachers, however, perceive local and commercial materials as approximately equal in value as a content resource (56-50%). The vast majority of both board and teacher respondents cite the need for content improvement in both local and commercial materials with 92% of the boards significantly recommending improvement of local materials as a resource for content. While fifty per cent of the teachers indicate local materials as the best source of ideas for content, only 36 per cent of board staff express this opinion. More board staff (42%) than teachers (25%) feel that local and commercial materials are the "same" as a source of ideas for content.

*Activities*

Over three-quarters of teachers report local and commercial materials as a small to moderate resource for activities with a slight preference for commercial materials. Conversely, 86 per cent and 77 per cent of

board staff cite local and commercial materials respectively as a moderate to major resource for activities. The majority of both board and teacher respondents indicate the need for activities improvement in both local and commercial materials with 89 per cent of the boards significantly recommending improvement of local materials as a resource for content. Approximately one-third of both teacher and board respondents cite commercial and local materials as a comparable source of ideas for activities. The remaining teachers are about equally split on local and commercial sources for activities; however, board respondents (45%) significantly favor local materials.

*Extra Materials*

Approximately three-quarters of teachers cite local and commercial materials as a small to moderate resource for extra materials with a slight preference for commercial materials. Over two-thirds of the board respondents report local and commercial materials as a moderate to major resource with a considerable preference for local materials as a "major" resource.

Approximately three-quarters of both board and teacher respondents report a need for improvement in local and commercial materials as a resource for extra materials. Slightly fewer teachers (68%) indicate commercial materials as needing improvement for this item. Almost half of the teachers and 40 per cent of the board staff cite commercial materials as the best source of ideas for extra materials while boards (42%) and teachers (25%) feel neither local nor commercial materials are the best source of ideas.

*Diagnosis*

Teachers report both local (66%) and commercial materials (73%) as a non-existent to small resource for diagnosis. Board respondents are more favorable although more than half (56%) view commercial materials to be a small to non-existent resource, whereas 74 per cent see local materials as meeting this need to a slight or moderate extent. Teachers feel that both commercial (68%) and local materials (56%) need improvement

and boards also indicate improvement is needed to a greater degree in local (86%) rather than commercial (74%) materials. Forty-four per cent of both boards and teachers see local materials as the best source of ideas on diagnosis. Approximately 33 per cent of both teachers and board staff cite local and commercial materials as equally useful as a source of diagnosis ideas.

*Evaluation*

Approximately three-quarters of the teachers and 63 per cent of the board staff view local and commercial materials as a small to non-existent resource for materials on evaluation. The majority of teachers (61%) feel similarly about local materials, and whereas 71 per cent of boards cite locally developed materials as a moderate to major resource, only 39 per cent of teachers share this view. Although a majority of both boards and teachers indicate the need to improve both local and commercial materials, board staff (73%) feel that local materials are most important to improve. Approximately fifty per cent of both boards and teachers see local materials as the best source of ideas for evaluation and 29 per cent of teachers and 35 per cent of board staff indicate local and commercial materials as an equal source of ideas for evaluation.

*Instructional Strategies*

Approximately three-quarters of the teachers cite both local and commercial materials as a small to moderate resource for instructional strategies with a slight advantage to local materials. However, board staff perceive local (86%) and commercial (71%) materials as a moderate to major resource for instructional strategies. The majority of teachers feel that local and commercial materials need improvement and board staff feel similarly, particularly with most importance assigned to local materials improvement. Over one-third of teachers and almost one-half of boards see local and commercial materials as an equal source of ideas for instructional strategies. Approximately 40 per cent of both boards and teachers emphasize local materials as the best source of ideas for instructional strategies.

*Organization*

Concerning resources for organization, teachers report local (75%) and commercial (80%) as a small to moderate resource for materials organization. Board staff (87%) are in agreement with this for commercial materials; however, 82 per cent of board staff see local materials as a moderate to major resource. Approximately two-thirds of teachers see it as slightly to somewhat important to improve local and commercial materials as a resource for organization. Somewhat fewer teachers see commercial materials as most needing improvement. Three-quarters of the board staff indicate it slightly to somewhat important to improve commercial materials as regards organization whereas 77 per cent report it somewhat to most important to improve local materials. About one-half of both teachers and board staff indicate local materials as the best source of ideas for organization. Of the remaining respondents, more teachers (18%) than board staff (6%) see commercial materials as the best source of ideas. The remaining respondents feel they are the same on this item.

*Clarifying Goals and Purposes*

Unfortunately, the question of clarifying goals and purposes as a resource was omitted on the teacher survey. Therefore, comparative data is not available.

Eighty-three per cent of the board staff report commercial materials as a small to moderate resource. Eighty-six per cent of board staff cite local materials as a moderate to major resource on this category. Whereas board staff (60%) feel it is *most* important to improve local materials, only a little over one-third of teacher respondents feel this way. Sixty-nine per cent of remaining teachers feel it somewhat to most important to improve clarification in commercial materials but slightly less than half feel similarly about local materials. Teachers (65%) and board staff (61%) agree that local materials are the best source of ideas for clarifying goals and objectives. Approximately one-quarter of all respondents perceive commercial and local materials as an equal source.

*Professional Development during Implementation*

Ninety per cent of the teachers look to commercial materials as a small to moderate resource for professional development as compared with 64 per cent for local materials.

Seventy-seven per cent of board personnel indicate local materials as a moderate to major resource for professional development during implementation. Teacher respondents state the need for improvement of locally developed materials with an almost even weighting for each of "Slightly," "Somewhat" and "Most important". Somewhat more teachers perceive it as *less* important to improve commercial rather than local materials for this criterion.

Eighty-five per cent of board staff report it "Somewhat" to "Most important" to improve local materials for professional development, whereas approximately one-half cite this need in commercial materials. Both teachers (59%) and boards (63%) feel local materials are the best source of ideas for professional development and approximately 30 per cent see them as equally useful.

APPENDIX L

Interview with Shevach Eden by Dr. F.M. Connelly, July 30, 1978, Jerusalem, at the Department of Education at Hebrew University.

C. Mr. Eden, you hold two positions with respect to curriculum in Israel. Would you just tell me what those two are?

E. I am the Director of the Department of Curriculum in the Ministry of Education and Culture in Israel. The content of my responsibilities is curriculum development and evaluation in all stages of the system from kindergarten, through the elementary schools, junior high, senior high, up th the 12th grade. The Department is connected with many Curriculum Centres. One of the centres is in the Ministry of Education and Culture itself. Others are located in the various universities and are financed by the Ministry of Education.

C. So when you say many centres - the Curriculum Centre which you specifically head is only one of these several other centres?

E. Yes, but the budget and the number of personnel engaged in curriculum development in the centre of the Ministry equals the budget and the number in all other centres.

C. I see. It's kind of a curious relationship here. You in fact fund yourself because of your other position.

E. Yes. We started as a small centre that became increasingly successful. Other centres began in three different universities. They eventually formed the Israeli Centre for Science Teaching. Our centre, because of its success, became a department and all other centres were then associated with it. A further differentiation occurred as the Ministry joined forces with some university faculty to undertake what we call projects. For example, we have a joint project for English - English for speakers of Hebrew - at Tel Aviv University. We have many such joint projects.

C. These projects are not through your centre but are funded by the Ministry?

E. Yes. Funded by the Ministry of Education, but the planning is done with the client. For example, as head of the department, I see to it that we encourage interesting contributions and, in addition, arrange contracts with scholars who prepare materials for us.

C. Let me clarify this for myself. For a country of three and a half million, the curriculum development work is fairly complex. Some of it occurs by individual projects such as the one you just described. Some through specific centres that have been set up to handle the curriculum. What is your feeling on this

organization? Do you feel that the use, the idea of Curriculum Centres, in particular the one that you are connected with, in charge of, is a viable way of undertaking and maintaining curriculum planning?

E. I feel very positive about it because it works. And teachers like the material. There is no compulsory use of this material in our country, only the use of the syllabus is compulsory. We also encourage individual contributions or books in areas other than what we are presently working on. Defensible alternatives are welcomed.

C. I'm interested in knowing how you set priorities in the centre. How do you decide what curriculum projects to undertake?

E. Priorities are set by the pedagogical director in the Ministry of Education, not by the centre, and not by the department because they represent the client. The Pedagogical Directorate consists of department heads for curriculum, teachers' training and inservice training. Basically, heads of departments where the major emphasis is education, not administration, comprise the pedagogic directory. This group meets one day a week. We submit a plan to this group for approval. Both groups are frustrated as there are so many desirable priorities. The chairman of the Pedagogical Directorate is a university professor performing a civil service, on leave from the university - but not as a representative of the universities.

C. Where does the initiative for ideas come from?

E. It can come from the project, the centres or the Ministry directory. Every year we review our plan within the overall three year plans used by the Ministry and make continuous revisions in the plan. Constant pressures from subject supervisors for improvements in their areas creates a tension between available resources and accepted projects or ideas. We have more than forty or fifty projects on the go. We have about 75% of the learning materials already available for the elementary and junior high, but only about 50% for senior high.

C. I am interested in a structural breakdown on your centre - the people who are involved, how it is organized, how it functions, how it works with projects.

E. We use the combined talents of many people - university staff with expertise in different subjects and different fields, teachers from schools who are working with the centres, curriculum planners and supervisors from the Ministry and Ministry subject coordinators. We train planners (about 100 so far) for our centre. They are teachers whom we identify as very successful experimental teachers. These people receive extra training to help them become better writers of learning materials. They study half-time and work half-time. New people are recommended to us by project staff.

These teachers come to us on study leaves or sabbaticals from their teaching jobs.

C. This is very interesting. First of all you have people who have been identified as good teachers. They come to you, work on a part-time basis so they get practical curriculum training, curriculum development. And then you, in addition, send them to Hebrew University for a training program in curriculum.

E. Yes. They take courses in new developments in planning, learning aids and textbooks, teacher-made tests, and evaluation. Three or four courses need to be related to curriculum planning and one or two courses from their subject area help to keep them up to date with developments.

C. All right. I am also interested in the relationship between the centre and the universities. How, for example, do you get scholarly leading of projects?

E. Project coordinators are invariably curriculum planners. Chairmen of the planning committees tend to be university professors. Teachers tend to be part-time or on leave from their teaching assignments. University staff play an advisory role. They read our manuscripts, make remarks and suggest ideas. Faculty staff work with coordinators only in the field of their expertise.

C. What advantages or disadvantages are there to a Curriculum Centre within the Ministry of Education?

E. Because there is no tenure from the university, people are only available for one or two days a week. The Ministry, by offering tenure, attracts better people, even though it's more prestigious to work for the university. And so that we can learn from one another, the Curriculum Centre runs a seminar, comparable to a university course, every week.

It is difficult to remove incompetent people. Another problem arises at the end of a project. Ideally, a new person should be involved in the second generation of a project. Some are so wedded to their projects they find it hard to be objective in dealing with needed improvements.

C. There seems to be a disenchantment with curriculum planning and curriculum development as a means for improving the schools and in various places around the world you hear people now arguing in fact against the production of high quality curriculum materials, feeling that the problems of implementation are too severe, that there are too many difficulties associated with the ideas that are built in, so you tend to hear a lot of anti-curriculum development concerns. Is there much - does that seem to be a factor?

E. Yes. We try not to change the curriculum entirely. We distinguish three parts in a reasonable, well planned curriculum - the safe old parts, the innovations already accepted by the teachers, and some new introduction. It is very important to monitor carefully and remove those things not working. The largest problem facing curriculum projects is the naive assumption that it is adequate to state or write down very nice ideas without giving enough thought to possible implementation problems. Coordination of development and implementation is imperative. The ideal situation is when the two are coordirated within the project.

C. Well, coordination is one thing, and the other thing that I hear is just abandoning curriculum entirely in place of teacher education - could you comment on teacher education?

E. Yes. Of course teacher education is very important but it's very hard to train teachers and to make them work without tools. I think curriculum learning materials are tools and to have good tools makes the work of a teacher a lot easier.

C. What relationship exists between the work of the Centre and commercial publishing of curriculum materials?

E. We encourage, through financial incentives, the commercial publication of learning materials. For example, we prepare all the materials and all the graphics. About fifty publishers formed a publishing company. They print and sell the materials. Also, we don't interfere when they are publishing textbooks of their design. When consulted, we offer suggestions on their developing manuscripts. We have a good working relationship with the publishers.

C. Thank you very much. That Was excellent.

Author - Mr. Eden has provided a comprehensive written statement on the curriculum development process. This process is integrated with needed learning materials development, evaluation and revision. An abbreviated form follows:

ORGANIZATION FOR CURRICULUM DEVELOPMENT - by Shevach Eden

We use a "continuous assignment approach" in which curriculum development is considered as a comprehensive, never-ending process of programme preparation, piloting and improvement.

Even after the completion of a final version of the specifications which guide text-book authors, and even after the curriculum centre has published learning materials which have passed through many trial versions, the work of the planners is not completed. The planning and writing team go on to other aspects of the same project such as preparation of background material for the teachers and the modification of the materials to meet special needs. They also continue to observe the implementation of the programme and to follow up any new developments in the subjects, as well as to note changes in curricula in other countries.

This approach to planning and the tasks outlined demand the existence of a permanent Centre, which will have available experts in various subjects.

*COOPERATION BETWEEN ALL GROUPS CONCERNED*

While the old-type curricula were criticised for not keeping abreast of development in the sciences and for not placing sufficient stress on the development of higher mental processes, the new programmes dealt mainly with the subject and its structure, but did not deal sufficiently with the developmental aspects of the student and his needs, nor the conclusions drawn from research on learning.

From a realization of the weaknesses of both approaches, it became obvious that what was needed in successful curriculum planning was the cooperation of all groups--subject matter specialists, experts in curriculum planning, school inspectors, active, experienced teachers, and educational psychologists. All these could offer many and varied contributions and thus possibly avoid the mistakes of the past.

*THE ORGANIZATION OF A PROJECT*

A project group in the Curriculum Centre prepares a curriculum for a specific subject for a particular educational stage. It consists of a Working Team and a Planning Committee.

The team is responsible to a Project Director and usually has four or five members, most of whom continue with their teaching. Their work is to prepare material for discussion at the Planning Committee, on the basis of suggestions originating from the Planning Committee and appearing in the relevant literature.

The Planning Committee meets frequently during the first stage of the work when the basic aims, principles, general framework, and chapter

outlines are dealt with. During this stage the team members are beginning to develop the learning materials and to experiment in classrooms.

The sequence of activities is as follows:

*The writing of the material.* The actual writing of the material is generally done by the teacher members of the team. On the basis of feed-back they rewrite the material and produce the final version.

*Follow-up.* This is undertaken again by the writers of the material, while the material is being used in classrooms. They do not evaluate the teacher, *only the material*, in order to secure first-hand information for its improvement. In many cases the team member undertaking this work will consult with teachers on their reactions to various sections, and make observations on the time taken to teach the material.

*Preparation of material testing.* This is the specialized work of another member of the team. He must be well versed in the content and aims of the material taught and capable of formulating suitable questions and constructing reliable tests. He will use the services of the evaluation unit in the Centre to analyse results, formulate conclusions, and suggest improvements.

*Teaching aids and equipment.* The identification of these must be handled by someone who is familiar with all possible sources and is able to oversee the production of new audio-visual and other teaching materials.

*Coordination of the project with instructional television and radio.* In the first years of the Curriculum Centre, curricular materials were submitted for preparation as telecasts and in order to ensure that the correct presentation was achieved members of the curriculum team worked closely with staff of the Instructional Television and Radio Centre. In current projects a teacher working in the Instructional Television Centre takes part from the very beginning in the curriculum project. In this way the television perspective is present right from the start.

*The coordinator and curriculum planning expert.* Curriculum planning may be looked upon as a specialized capability calling for appropriate University training, extensive reading, and a professional vocational attitude.

The Project Coordinator or Director is responsible for all the work carried out by the team. He leads and directs it and in effect, trains the team members during their work. The Coordinator must be academically trained in the subject matter he deals with, as well as in education, and should have had a successful teaching career.

*The planning committee, its composition and function.* An expert, usually a university professor, is appointed as Chairman of the Planning Committee. Such an appointment gives more independence to the Committee

in its work and is of help when the proposed curriculum is submitted for approval to the Ministry. The Committee's main function is to create conditions which facilitate the introduction of new subject matter into the curriculum, and the modification of existing content.

Each Committee will have an expert adviser to serve it. He will act for the Committee in two roles--as adviser and as an influential citizen. The expert acts as an adviser when he is presenting information, analysing alternatives, and pointing out the consequences of adopting any alternative in the particular field in which he is highly qualified, as an influential citizen when he expresses his opinion on matters which are of general concern though not specifically within his field of expertise. The distinction between the two roles of the expert is hard to make. Clearly, defined expectations may help in using experts in curriculum planning. These expectations are likely to be best expressed by the kind of questions put to him.

Most experts working in the Curriculum Centre are subject-matter specialists. Some are experts with a highly specialized knowledge, others have a broad intellectual background. The former are consulted by members of the team or by the Coordinator, whereas the latter are invited to participate in the Committee's deliberations. Philosophers and sociologists are consulted in the initial stages when objectives and principles are determined. The advice of psychologists is used mostly in the planning of the learning activities. Experts in the field are not expected to have ready answers to all the problems encountered, though it is usual for the Coordinator to be aware of relevant research findings.

In most of the Committees the subject matter specialist acts as chairman. The Coordinator of the team is the curriculum specialist. The success of the Chairman depends not only on his ability to provide leadership and reach consensus but on his understanding of the limits of his expertise and his modesty over issues in which he is not expert. Sound activity on the part of a Planning Committee depends also on the strength of the curriculum specialist, who is usually a teacher or a part-time lecturer in a School of Education, though not in all cases has this division of responsibilities between the two key persons been favorable to innovation in curriculum. To have a subject matter specialist as Chairman of a project may have been necessary in the early days of curriculum development but it is an open question whether this practice should continue.

School Inspectors provide the links between the curriculum development team and the schools and in addition make a contribution to the work of the Committee. Their main task is to aid in the implementation of the programme. It is their responsibility to supply the necessary background information and to be a source of feed-back once the new programmes are introduced; and since the Curriculum Centre's main objective is the planning of a comprehensive and overall curriculum from kindergarten up to and including the 12th grade, the Committees include school inspectors for different levels of the school system.

*STAGES IN LEARNING MATERIALS DEVELOPMENT*

The organization of a project is only one aspect of curriculum development. Another is the decisions and choices which have to be made, and to these we shall now turn, first to policy decisions which may be concerned with general education issues or with proposals for developments in specific subjects.

General decisions are concerned with such things as the interpretation of the aims of education as a whole, and Knesseth (the Israeli Parliament) following the practice of other countries, formulated in 1953 the basic educational aims which were incorporated in an Education Act. In addition such matters as the place of vocational training, its extent and character; the kind of pupil grouping to be employed in schools, and the curricula to be adopted for various schools are matters of general policy.

Specific subject decisions relate to such matters as the allocation of time for each subject; the extent to which various subjects will be taught at different age levels forms the basis of directives issued to the Curriculum Centre which are then used as guidelines by the committees and teams appointed to prepare the curricula for the various subjects, or the introduction of new subjects or topics.

The Curriculum Division of the Centre makes the administrative decisions concerning which group--the Curriculum Centre or other curriculum groups active at the Universities--will be asked to prepare the required curricula. This is followed by the setting up of a Planning Committee for each subject and the appointment of the Project team in cooperation with the interested Ministry departments.

It is at this stage that curriculum decisions concerning the objectives for teaching each subject are defined and the basic principles for each curriculum outlined. The Planning Committee for the subject constructs the basic outline of the curriculum and the general teaching framework for that subject, from kindergarten age through to the 12th grade. This framework lists subject content and its allocation to the various classes.

The proposed curriculum (in almost all cases in its final shape together with samples of material for the students and teacher) is then submitted to a Subject Committee for its approval. Should there be any disagreement between the Subject Committee and the Planning Committee, the matter is referred to the Minister of Education for final decision. During the six years of the activity of the Curriculum Centre there was only one such case of disagreement and then the Minister agreed with the curriculum planners. After the approval is obtained, the proposed curriculum is published in the form of a trial edition.

The trial edition is submitted to scientists, educators, and interested public figures and their comments are sought partly by means of questionnaires and partly through discussions at meetings of teachers and inspectors.

Curricular materials may be submitted to the members of the Planning Committee for such changes and improvements as seem justified and prudent. As soon as the curriculum receives the final approval it is published and becomes the programme for teaching.

A great deal of time is needed to change the trial edition of a programme into a final one and textbook writers hesitate to prepare a textbook related to a programme which has to be changed after a short period. And last but not least, there remains reservations about the final character of a programme as suitable for its purpose even for a limited period. There is a growing tendency to make it possible for developers of materials to introduce changes continuously.

At the same time as the basic outline of the curriculum is being prepared, the team starts with the preparation of all relevant teaching materials including students' text and work books, teachers' guides, background teaching material, teaching aids and equipment and the preparation of tests.

Three stages in the development of the teaching material can be distinguished: the 'formative' stage, the 'try-out' stage, and the 'controlled experiment' stage. The formative stage includes all activities before the programme reaches the 'try-out' stage. The objectives are clearly stated and the central ideas, concepts, and topics are identified.

As the material is being developed, it is submitted to subject matter specialists, an educational psychologist, and an expert in teaching methods for comment. Some projects have a subject matter specialist participating in all its sessions: others arrange for discussions between the expert and the writer of the material. In many subjects, particularly the sciences and in agriculture, suitable experiments, equipment and teaching aids have to be prepared and are often invented.

The trial stage is usually carried out by teaching the material in six classes. These are chosen to include pupils with different mental levels and social backgrounds in different schools. Successful and experienced teachers are chosen for this stage as it is materials prepared for the student and teacher which are being tested and not the influence of the teacher's ability. These teachers receive training and instruction both before and during the trials.

At this stage of controlled experiment--the 'running in', as it were--the material is taught in 24-30 classes representative of the country as a whole. In some subjects, particularly in physics, the number of classes is usually limited to about 16 (in 16 different schools) because of the expense involved in supplying the necessary apparatus and equipment. About six of these classes are placed under intensive observation, while progress in the others is followed through teachers' reports obtained verbally or in writing and in test results. Using this information, a third edition is written and is finally published commercially.

In addition 26 regional Pedagogical Centres which provide guidance in the use of teaching aids, equipment and textbooks and hold permanent and temporary exhibitions have become involved in the diffusion of new curricula. Recently these Centres have employed educational advisers on their staffs. The adviser is usually an experienced and successful teacher from the district, who takes charge of group training as well as advising individual teachers who consult him. Advisers in a subject from all over the country meet at times in order to discuss both developments in the curriculum of their subject with Project Coordinators and training in their implementation.

Certain projects such as mathematics and science have 'guides' associated with them who receive special training and are, in turn, responsible for giving continuous advice to teachers during their work. Currently, a group of guides in language arts is being trained. No general plan for this kind of work has yet been drawn up. The function of the special curriculum guides is still to be clarified and their production organized.

Plans and preparation have also been completed for training Coordinators of Subjects in the schools. These are teachers specially trained in the new curricula, and will have the responsibility of instructing other teachers in using the new materials.

The logistics of curriculum renewal remains a considerable problem: one of how best to supply the teaching aids, equipment, specimens and the like to the entire school system. Resources are not always adequate to the task.

In summary, some parts of the new curricula are better implemented than others. The division of the responsibilities of planning and implementation between the different departments has its advantages and disadvantages. Efforts are made to minimize the disadvantages which endanger the curriculum reform.

*THE FUTURE*

'Second generation' curricula developments are expected to start only after a thorough analysis of the general problems of schools, the needs of society and students, as well as an analysis of the philosophic assumptions behind the interpretation of these needs. New priorities, differences of emphasis, new styles of learning, new topics, changes in time allocation, modifications to the climate of the school--all of which derive from ideas about man, society and what is desirable--have to be discussed long before preparation for the 'second generation' of curricula can be put in hand. As the work on the 'first generation' of the new curricula continues so preparatory work for future curricula is already under way.

In the 'second generation' project teachers may have more autonomy though just how much depends on a reasonable standard of entry to the

teaching profession being maintained; and an improved training, the existence of a variety of materials, with different versions to suit different ability levels, a range of topics from which a selection can be made, and training in the development of materials.

The first step in developing and strengthening the autonomy of the teacher may be to help teachers to choose from a variety of materials, those which are the most appropriate for their students in meeting their stage of readiness, their abilities, interests and backgrounds.

Individualized instruction, the integration of subjects, the structure of the disciplines, the ideas of progressive education all strive to find realization in curriculum development. At the same time there are the problems raised by attempts to plan and implement a whole range of curricula.

Few curriculum planners doubt that the implementation of a new curriculum can be separated from its planning, and to saddle a National Curriculum Centre which is currently involved in more than 30 projects with the responsibility for both planning and implementation could in time make the Centre responsible for the entire learning process of a school system. This could mean that planning might be limited by the urgent short-term needs of the schools which tend to influence the 'new' curricula at the stage of implementation. The problem is how to retain freedom to concentrate on planning and still secure implementation of the programmes that are planned.

Not only is there the press of the school and its needs but also the task of finding ways to cooperate with departments of a Ministry without limiting the initiative and activities of those departments while at the same time retaining the purposes and priorities of a programme. Such problems have yet to find solutions--solutions which recognize that the role of a school is related to the needs of the society which it serves. A voice for 'deschooling' may express the frustration of an individual in a developed society with its schools. In developing countries the role of schools is critical. In a country where mothers learn the mother-tongue from their children, schools play a crucial role in building up a nation. What happens in a school depends not only on the teacher but also on the tools which are at his disposal. The curriculum is his main tool. In renewing it lies the challenge of curriculum development.

Diagramatic representation of the curriculum process in Israel follows:

CHART 1: ORGANIZATION OF THE CURRICULUM DIVISION

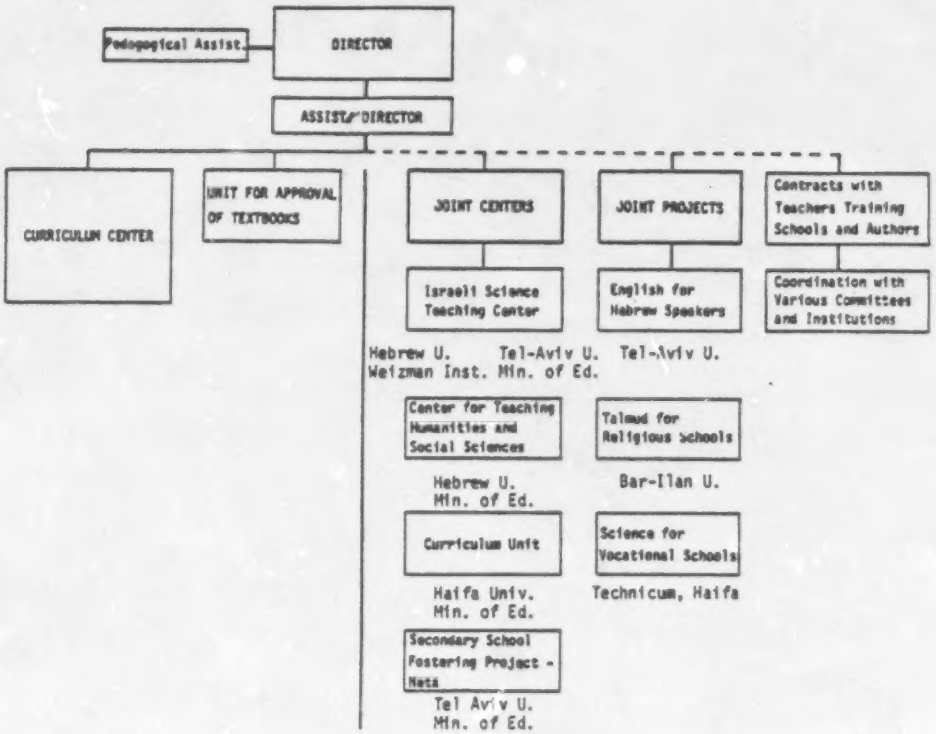


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CHART 2: ORGANIZATION OF THE CURRICULUM CENTER

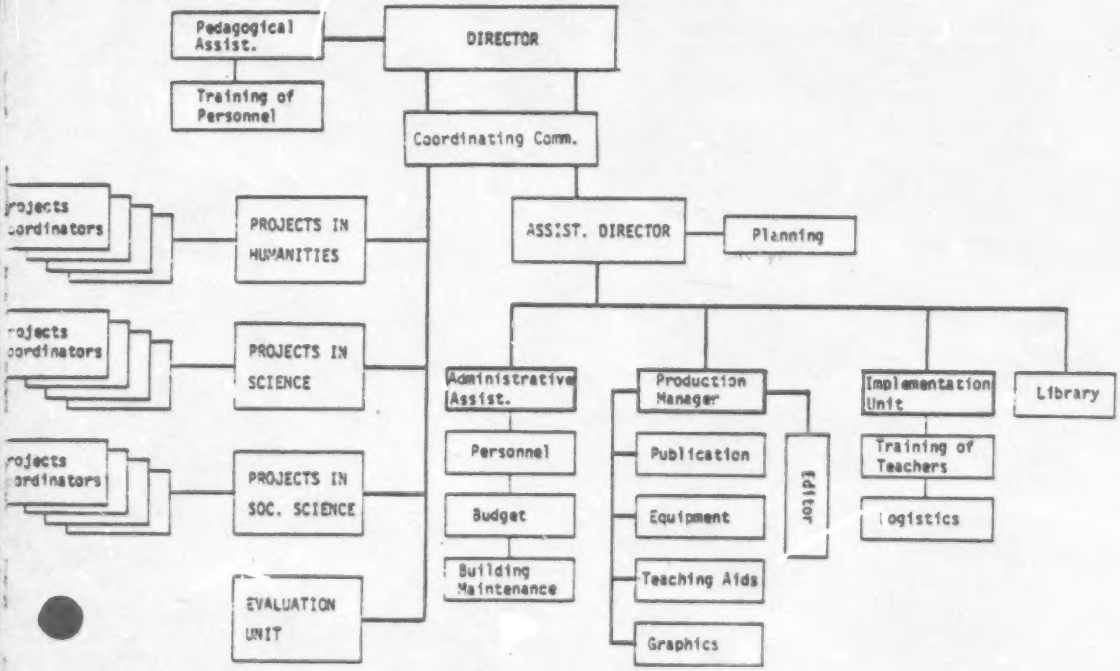

CHART 3. MODEL FOR CURRICULUM DEVELOPMENT AND IMPLEMENTATION

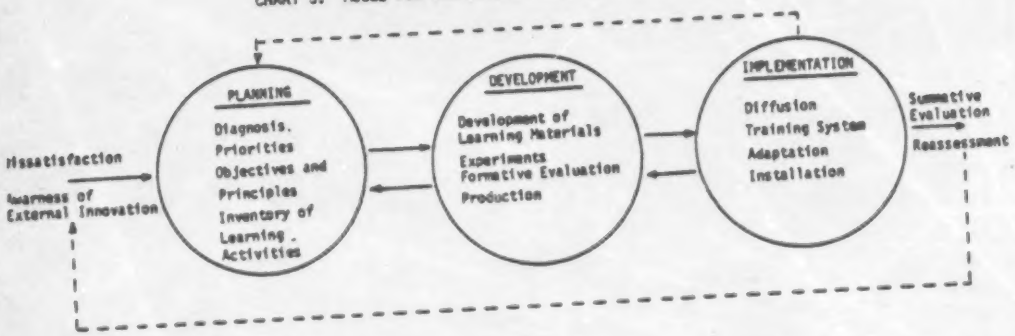


CHART 4. IMPLEMENTATION OF A NEW CURRICULUM IN LANGUAGE ARTS
(VERTICAL ASPECT)

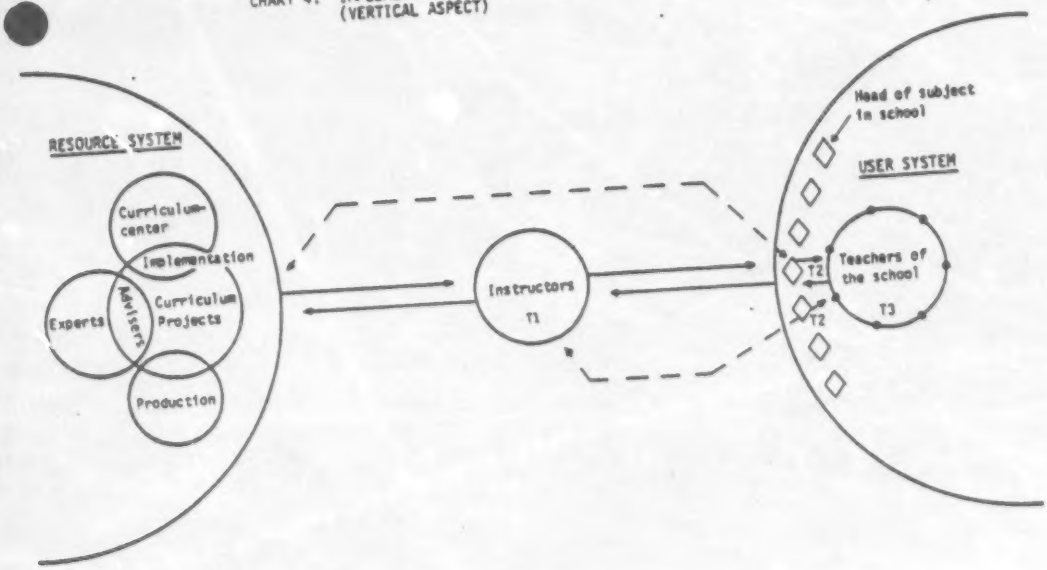


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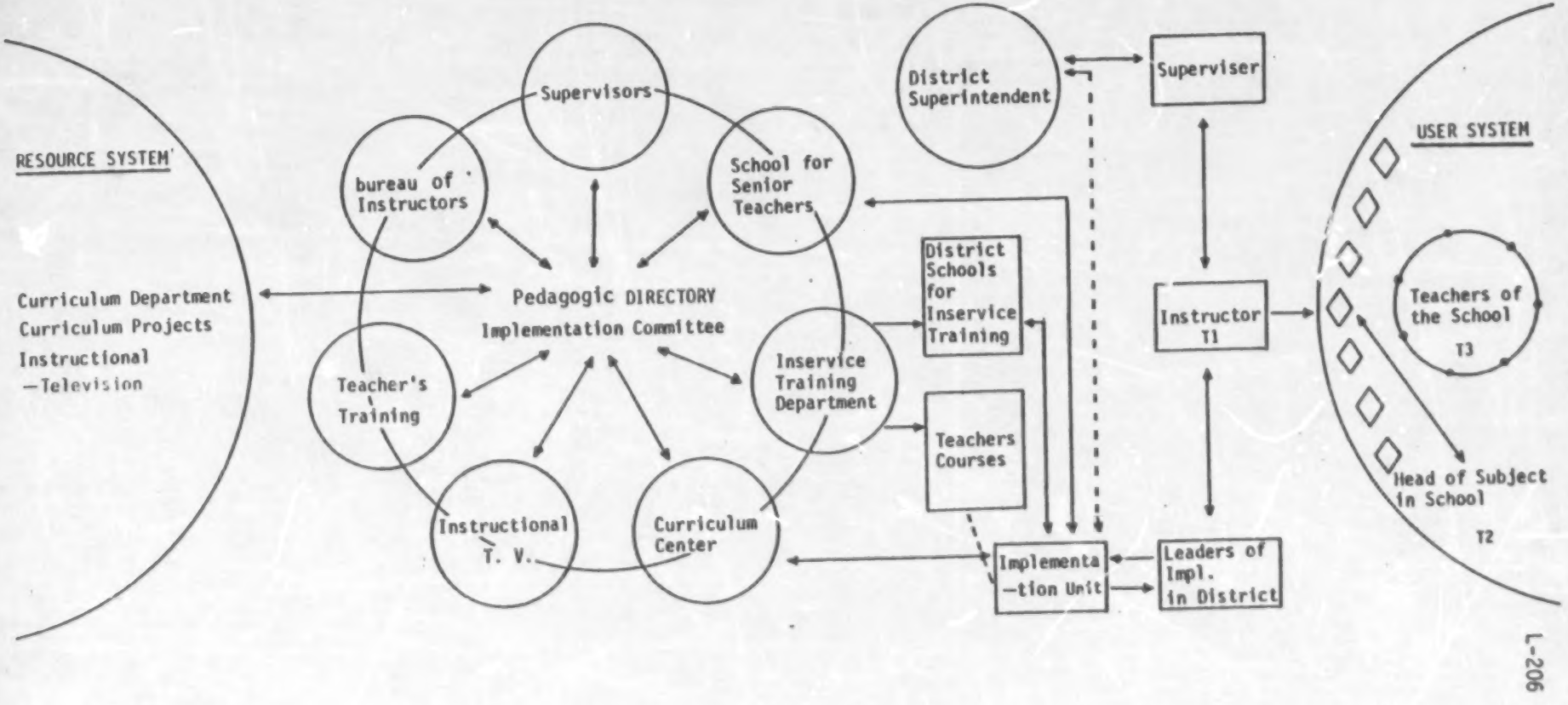
CHART 5. LINKAGE AND COORDINATION IN IMPLEMENTATION OF A NEW CURRICULUM IN LANGUAGE ARTS (HORIZONTAL ASPECT)



Abbreviated version: Interview with Dr. Pinchas Tamir by Dr. F.M. Connelly on July 30, 1978, at the Science Teaching Centre at Hebrew University.

C. Could you tell me about the purpose and then the organization of the Science Teaching Centre? I am specifically interested in its relationship to the planning of curriculum programs for the schools.

T. The Hebrew Science Teaching Centre is the first organization for curriculum development in the country. Coordinating all curriculum development work in the country has made it easier for us to get financial support from UNESCO. All the development and implementation of science and mathematics programs at the senior high school level are coordinated by the Science Teaching Centre. Moreover, these people who were working at the Science Teaching Centre developing projects are actually the basis for the personnel in the curriculum development centre of the Ministry of Education. As far as science is concerned, especially in biology, the work of all projects is coordinated by the Science Teaching Centre beginning with elementary science in the kindergarten and at the sixth grade elementary school. This work is done at Tel Aviv University. Then the work for the junior high school, which is done by the curriculum development centre is also coordinated by the science Teaching Centre with the work that is done at the senior high school level. The loose structure of the Science Teaching Centre is, I think, worth mentioning. In each of these universities the people who work in curriculum development implementation are regular members of the faculty of the university. They have appointments at the university. They do not usually get salaries from anywhere else but the universities, and owing to this or due to this they are on very good terms with the science staff at the science and mathematics departments at the universities and therefore can actually draw upon the energies and expertise of these people at the university more easily than any other situation. The people who actually do the curriculum development work under the directorship of the academic staff are not - do not get permanent jobs at the Science Teaching Centre. They are rather hired on a part-time basis. They continue as practicing teachers, most of them, and usually they spend a few years with the centre; then they go back and others come. Therefore, there is an exchange of forces and people.

C. So people do come in and out from the field, and there's a training - in effect a training program takes place for teachers as they come in, involve themselves, then leave. So even though you are organized through the universities, you are not what you call a strictly academic development team. You have leadership given by academics, and you have a chance to make sure that the academic content, through contact with people in the biology department, for example, is there. At the same time you use teachers in

the actual writing, shaping of the textual print material and, presumably, in the field-testing.

T. That's true. And the Science Teaching Centre is allowed to hire people, usually on a yearly basis and those who work for many years actually renew their contract every year. With the Science Teaching Centre. The only exceptions are those academics who have permanent tenure appointments at the universities.

C. So how much work would you have going on at any one time? Would you say that science was a major area in Israeli curriculum development at the moment? Is it, compared to other areas, fairly heavily supported with a fair amount of activity?

T. Well, that's a very good question. Science is the area where we probably have the most programs available to teachers at all levels. The development work started as early as 1960. And strangely enough, one would think that since we have enough programs, and in other areas we do not have enough programs, there would be more development work in other areas. But this is not true. Apparently, curriculum development work has a momentum of its own. Once this process starts, and since our structure allows for continuous projects rather than the five or three year projects in the United States, Canada and the United Kingdom, then what we have is continuous curriculum development. New programs, or new parts of programs are continuously exchanging old parts of programs. People who are engaged in curriculum work never think their work is completed. Once we complete, say, the biology program for the first grade, we begin to think about the biology program of the ninth grade because the students who come now to the ninth grade are different from the students who came to that grade five or six years ago.

C. All right. That's interesting, because I don't know of any academics that would disagree that that's important, although many when they finish a project think they are finished, as you well know from, as you've just said, the United States. On the other hand, what is it that makes it possible to do this? You have support, someone finances you. You continue your work. And there must be something that makes it possible for you to take that idea and work with it. It's one thing to believe it, it's another thing to have support to do what's necessary along those lines.

T. I give credit to the Ministry of Education for a wise decision. After we lost the UNESCO money, the Ministry, realizing the need for continuous work in the project, provided most of the money necessary to operate the Centre. Some money comes also from the sales of books that we publish. The profit could be greater but we subsidize the books so that their prices will not be as high as they should be when we produce them in such high quality. But the most important reason for the success of the project is that they develop mechanisms for implementation. For example,

I don't think that our biology project would have succeeded if we didn't establish the supply centre which works on a subscription basis. Each school pays one hundred dollars per year and they get all the material they need. We also provide weekly inservice training at the centre. Teachers come and pick up materials to take to schools. This program has been in operation for ten years and is becoming increasingly successful. And in fact it now operates without any costs because the mechanisms that we established are there.

C. Okay. I'm really fascinated, actually, by what you've been telling me. Because you not only have a complex inter-university arrangement to begin with, but you have complex relationship to publishers on the one hand, where, presumably, they make some money when they sell materials, but you also gain some royalties as a result. And this commitment on the part of the schools. Who actually would pay the $100? Individual schools?

T. Whether they are private institutions or they belong to the state, the school will pay this sum of money. We also have succeeded in maintaining very good working relationships with all the other departments in the Ministry of Education and with the educational system. Examinations are controlled totally by the projects. In other words, the projects are those that design the matriculation examinations and through the examinations can then really guard and regulate what is being taught in schools.

C. But how do you establish that kind of relationship? You are at a university. Normally universities work at some distance from the government on things like this. And yet you have an agreement apparently not only to continue your work over a long period of time, but also to have an effect over the examination system.

T. When we started in 1965, we emphasized the probable lack of success in implementation if new ideas were not reflected in the examination. The Ministry of Education was very cooperative. The Ministry of Education in Israel is innovative and ready for innovations. The people there, at that time and still today, actually encourage the projects to innovate and will give any help that they can to do this. For example, we are holding practical laboratory examinations in Biology for all students who take this inquiry oriented version.

These examinations cost much more than paper and pencil tests, and yet the Ministry has willingly provided necessary funds. Because they realize first that if these examinations really exist, students and teachers who work in laboratories will be inquiry oriented because the nation's major educational goal is inquiry oriented. The Ministry also realizes that all the materials developed for the examinations become, right after the examinations, curriculum materials. These materials are now being used in the schools. And they are much more innovative than the original texts.

C. Where are these examinations designed?

T. We have a project which really recruits people who design the examinations. These people get official recognition from the department of examinations at the Ministry of Education but they work as part of the project. In this way they develop new materials. The Minister of Education then analyzes the results of the examinations by computer, and provides all the feedback to the project. The project then calls teachers for inservice training days where all the results of the examinations of last year are being analyzed by the teachers. Sometimes the teachers repeat and do the same examinations that the student did last year in order to get used to it. And all this becomes a whole system, rather than separated activities. It is an integrated system of work in curriculum development, implementation, examination and part of the general educational system in all the schools.

C. Recent conferences on innovation indicate universal problems in implementation as trying somehow or another to integrate the teacher's understanding of the curriculum program with the program itself so that there's not too much of a discrepancy and this seems to be country by country, project by project, a global problem. I am interested in the examination as a possible vehicle for drawing attention to some of the major ideas that may lay behind some of the curriculum innovations. The examinations that you yourself have worked with in biology contain some fundamental ideas about inquiry which are fairly deep ideas about the nature of science and about the nature of learning. Do you find that it's possible through the examination system to highlight those aspects and possibly to train teachers at that level through the examinations? Will you comment a little bit on that?

T. I think it has been our experience that this is actually possible. I didn't mention that all the problems that are developed by the Israeli Science Teaching Centre are voluntary problems. In other words, although we give advice as a centre, as a system we never force the teachers to adopt any curriculum against their will. They have a syllabus but not a program. And we were the ones who insisted that all examinations will continue as long as there are teachers and students who want to take them. So while in 1969 we had 100 students taking our examination and 3,000 students taking the old examination, this year we have about 5,000 students taking our examinations and not more than 300 students taking the old examinations. As you see from these figures, the number of students electing biology is almost doubled in the last seven, eight years. It shows that the program, in spite of the high intellectual demands is otherwise a very attractive program to students and teachers alike. I don't want to say that all the teachers are angels and all of them actually understand inquiry but, on the average, the practice in the schools is quite encouraging. And

I would say that a large portion of it is the coherence of the demands made upon the teacher with the demands made by the examinations. There is no conflict there. If the teacher is teaching for the examination, he is actually teaching science by inquiry.

C. It seems then that one of your responsibilities toward the teacher is the examination system, the feeding back of practical exams. The kind of examinations that you set would be a fairly major teacher training device. What other vehicles do you have for teacher training?

T. Well, there are two. One, as I already mentioned is the inservice training that we do continuously. In fact, the biology project in Israel takes up about 1/4 of all the money that Israel is using at the high school level for teacher training and this we do by this continuous inservice training based at the Science Centre and by summer courses. We hold the courses in different places--in the universities and, for instance, nature field schools where teachers are studying nature, field biology, teachers going to the experimental station to do some work with a scientist and with students who come to summer courses. Various kinds of inservice ideas and inservice training. So this is one thing. It's continuous work. Teachers - there are some teachers that I know who go every Tuesday. For instance, they may not even know what's on, but they just go. The other one I think is also very important. As it happened, all the people in Israel who are doing teacher training, preservice teacher training at universities or teacher colleges are, or have been, members of the curriculum project in biology. They teach the students in such a way that students accept our innovative biology programs as matter-of-fact.

C. Ah. So, in fact you have people, you bring them in, you give them training, they become educated, and then they do some inservice training themselves?

T. Yes. That's true. Now people who train the biology teachers, and to a certain extent chemistry teachers, either have been or still are members of the curriculum development project. There are about 50-60 teachers graduating every year which come and then join the forces.

C. Okay. Now, looking into the biology program, do you see any shifts in emphasis or trends in your work. You mentioned the continuity would be from grade eight to grade nine. But in looking forward for four or five years in your own work through the centre, do you see any changed orientation, changed directions for your work? Shifts toward certain kinds of materials production? Shifts toward emphasis on teacher training over curriculum planning or balance between the two?

T. I think the major change that I can see is that in the middle 1960's and until the early 1970's, we mainly emphasized laboratory biology. The work was laboratory and it also involved analysis of original research papers. But it had very little in terms of field nature, history, environmental education, environmental problems. What I see now is the trend to move more towards environmental problems, towards biology, man and society, and I think similar trends have been observed all over the world. However, our continued emphasis will be on the inquiry process in science teaching.

C. Thank you very much.